FEBRUARY 6, 1961

PAPER TRADE JOURNAL

PLASTIC WIRE PERFORMANCE . . .

Detailed report was important feature of CPPA meeting. Other conference highlights — high speed calenders, new surface sizing technique, causes of digester stress.

DIFFERENT VACUUM SYSTEM . . .

Specially prepared article compares performance and experience with two radically different vacuum systems on identical machines.

Contents of the Week, pages 4-5

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Paper sculpture by Giuseppe Baggi

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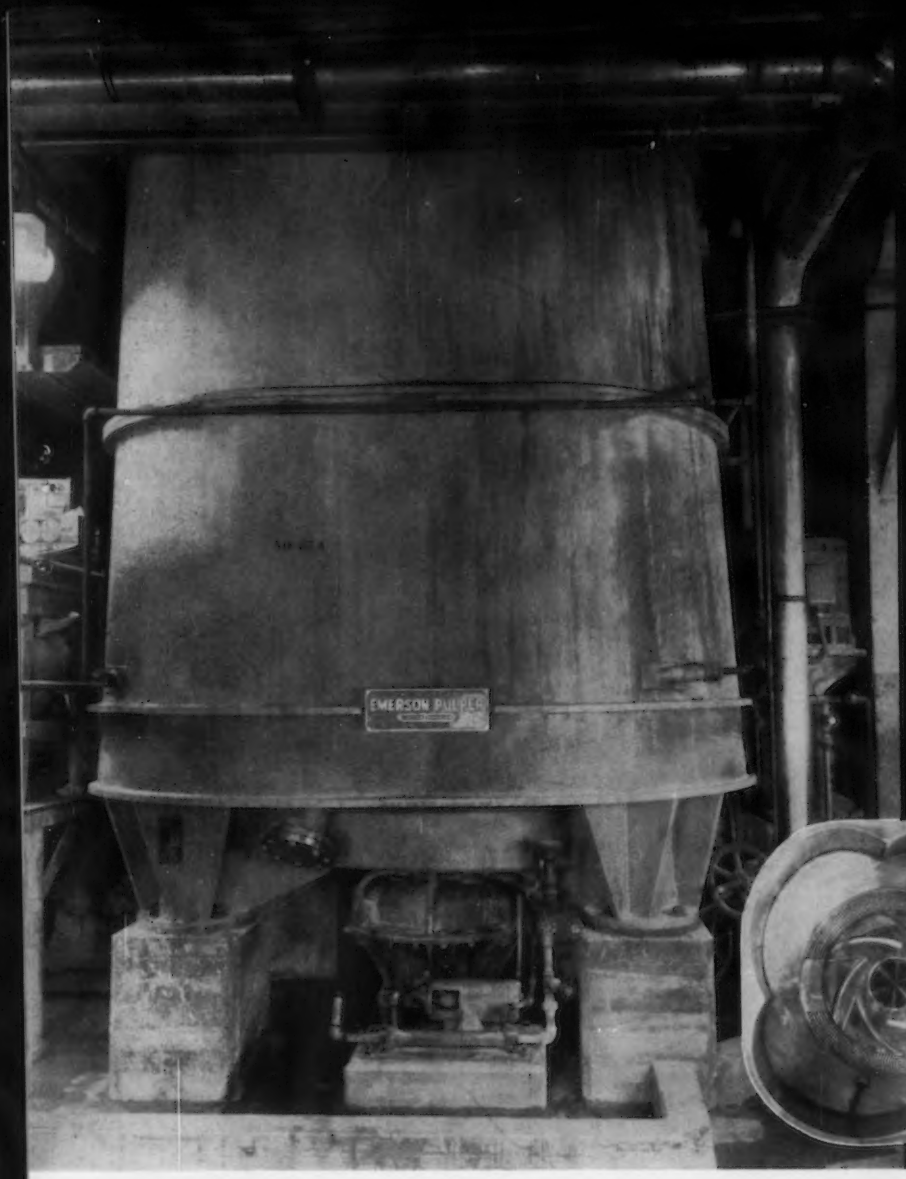

PULPING TIME QUARTERED

H.P. CUT 400%

with Emerson Triple Attack Pulper

Lobe-shaped, tapered tub walls, conical bottom, heavy, balanced action bottom rotor and extraction plate.

TRIPLE ATTACK

"THIS PULPER has exceeded our fondest expectations of what a pulper would do," reports an engineer at a large mid-western paper company.*

No wonder! Since an Emerson Triple Attack Pulper was placed in service at this mill, the time required to break up wet strength broke has been cut from 6 hours (beater) to 1¼ hours. Power consumption dropped 400% — from 25 HP/Tons/Day to 6¼ HP/Tons/Day. Slushing took 2 hours in a beater. Now, the pulper does it better in 40 minutes.

The Emerson Pulper requires but a single operator — takes a 2000 lb. charge at one time. Maintenance is negligible. Requires no replacement parts. Conserves valuable floor space. Clean operating — no splash. Heat loss is slight. Dumping is fast and complete.

The Emerson Triple Attack Pulper is noted for its thorough, uniform defibering in the shortest cycle time. This is achieved by advanced engineering that combines a lobe-shaped, tapered tub wall, conical bottom and heavy, balanced action, bottom rotor. In operation, four stock flows are developed which form an interweaving, overlapping pattern with no "dead spots." All fibers in every charge receive an equal share of the applied energy. *Triple attack* pulping results from 3 distinct defibering actions — impellor to fiber, fiber to tub wall, and fiber to fiber.

Emerson Triple Attack Pulpers come in nine sizes — 100 to 8000 lb. units. Each unit defibers virgin or waste stock at 8% to 12% consistency and delivers fast, uniform defibering with a minimum of required energy.

For full information on how the Emerson Triple Attack Pulper can help you improve production and cut operating costs, get in touch with The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.

*Name on request.

BOLTON EMERSON TRADE MARK

PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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Week of February 6, 1961
Vol. 145, No. 6

FEATURES OF THE WEEK

Formex Performance; New Surface Sizing Method; Calender Operation Analysis

These were some of the highlights of the 47th annual meeting of the Technical Section CPPA held in Montreal the last week of January. As usual the program was notable for the coverage of all types of pulping, paper and board manufacturing, engineering and technical problems. **36**

Sulzer Vacuum Installation Proves Highly Successful on Paper Machine

Pertti Hahl, technical manager of the Summa newsprint mill of Enso-Gutzeit Osakeyhtio at Summa, Finland, discusses here in an article specially prepared for Paper Trade Journal, the experiences they have had with two different vacuum systems for their paper machines, Nash pumps, and Sulzer blowers. **41**

How the South is Utilizing Three Potential Sources of Chips **44**

Raw Materials Trends Show Rising Exports of Pulp and Waste Paper

During 1960 the United States became a major exporter of market pulp to Europe. Also, of significance is a large increase in the export of waste paper—John R. Mutzabaugh **48**

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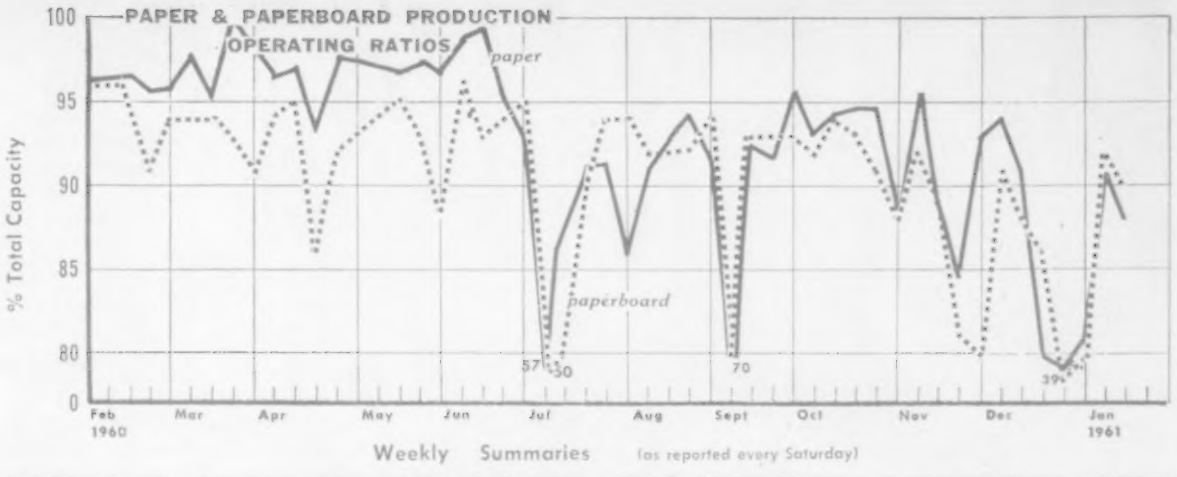


NEWS OF THE WEEK

Paper Mill Planned For Alberta . . . Pulp Mill to Be Built Near Buenos Aires . . . Murray Resumes Lumberton Pulp Presidency . . . Waldorf-Hoerner Mill Now in Full Operation.

Perkins-Goodwin Elects Officers . . . KVP-Sutherland Names Data Processing Manager . . . Heck Advances At Rhinelander . . . Three Win Promotion At Crown-Zellerbach.

Expansion Plans Announced By Carolina Paper Box . . . Riegel Forms Carton Development Group . . . Brown & Bigelow Names New General Manager . . . Reiniger Named V-P of Longview Fibre Subsidiary.

Trends *21*

News of the Industry *23*

Paper People *24*

News of Converters *28*

Obituaries *35*

New Literature *49*

Prices of Fibers *50*

News of Suppliers *51*

Figures of the Week *54*

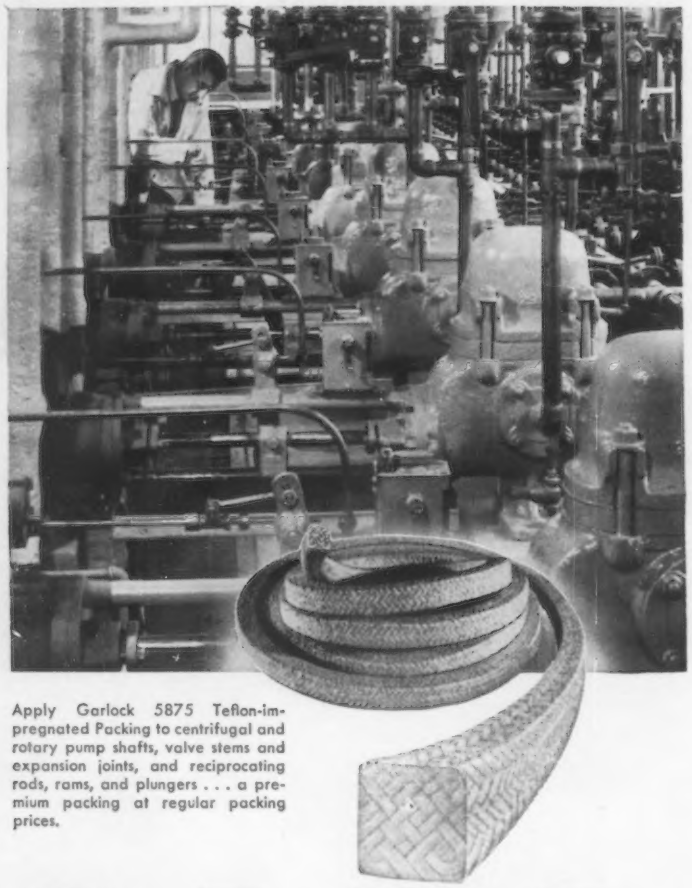
Classified Advertising *58*

Advertisers Index *62*

REMEMBER THESE DATES

February 6-7	Flexographic Technical Association. Third Annual Meeting and Technical Forum, Hotel Roosevelt, New York
February 20-23	Paper Week in New York
March 26-29	National Paper Trade Ass'n, Annual Convention, Waldorf-Astoria Hotel, New York

ENGINEERED TEFLON PRODUCTS
for Paper Mills



Apply Garlock 5875 Teflon-impregnated Packing to centrifugal and rotary pump shafts, valve stems and expansion joints, and reciprocating rods, rams, and plungers . . . a premium packing at regular packing prices.

NOW—YOU CAN BUY GARLOCK TEFLON* PUMP PACKING AT REGULAR PACKING PRICES!

Through an improved manufacturing technique, Garlock offers a Teflon-impregnated LATTICE BRAID† Packing at a reduction of approximately 40% over the price of similar competitive packing. Designated Garlock 5875, this packing can be purchased at prices comparable to regular packing.

Enjoy premium benefits without a premium price. Garlock 5875 offers a high Teflon content—more than 30% by actual weight—for greater protection, reduced wear. In temperatures from −90° F to +500° F, Teflon-impregnated LATTICE BRAID Packing is recommended for use against moderately destructive and corrosive mineral acids and caustics. For more destructive and corrosive applications, Garlock 5888 Teflon-treated fiber packing is recommended. Teflon, too, is as "frictionless" a material as you will find; this greatly reduces wear to the packing itself, and to any moving parts that it contacts during normal operation.

Specialized construction provides longer life, less maintenance. Garlock 5875 Packing is made from Teflon-impregnated white asbestos yarn, woven in the superior LATTICE BRAID construction. Here, each strand of treated yarn is intertwined at a 45° angle through the packing body. This completely integrates the structure for greater strength and, unlike ordinary square or round braid, eliminates individual *layers* of yarn—layers that, once worn through, destroy the usefulness of the packing. Without a layer or single outer braid to wear through, LATTICE BRAID remains unified without disintegrating far beyond the limits of other packings.

Enjoy fast delivery from warehouse stock. Garlock 5875 Packing is immediately available in sizes from ¼" through ⅝" in either spool or reel form to meet your specific needs; also available on order in ring form in these sizes. Specify now from your local Garlock representative at the nearest of the 26

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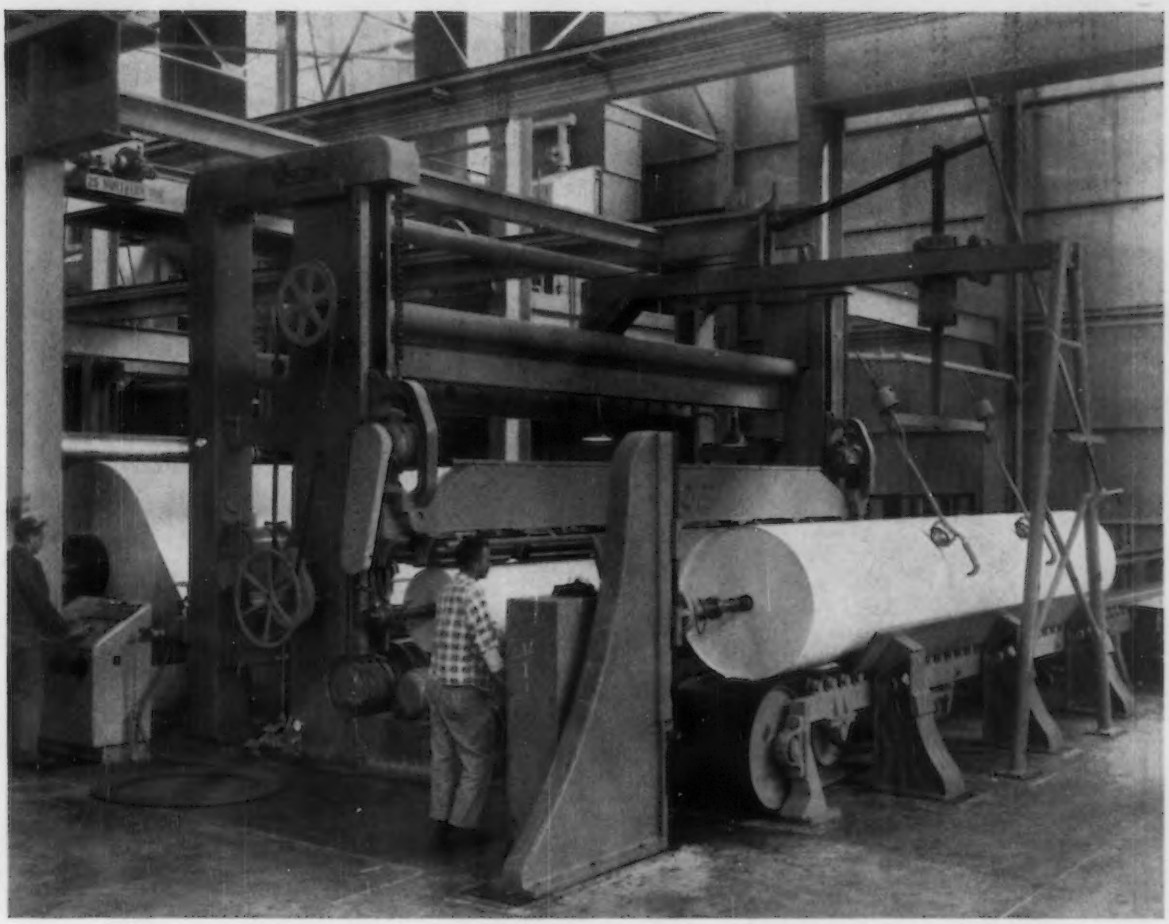

S. R. CHRISTENSEN

Bowaters Southern Paper Corporation No. 4 Machine Winder—Design Speed 6000 FPM

Beloit Model "L-24" Newsprint Winder

If a new winder is included in your future planning, take advantage of Beloit Eastern's many years' experience in building high-speed winders to meet the most exacting mill requirements. No matter what the size, speed, or trim, one of Beloit Eastern Corporation's family of winders will do the job. These winders provide an excellence of winding unsurpassed in the paper industry. Practical mill experience and fine craftsmanship integrate winder, tension control, slitting, drive and roll and shaft handling into a single system with unit responsibility. Look to Beloit Eastern Corporation for the finest in finished product processing equipment.

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TGS...

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In order to better serve our far-flung customers in the process industries, we have developed at Beaumont, Texas the most modern Sulphur storage, handling and loading facilities in the world. This terminal and shipping center is now receiving deliveries from all four major TGS properties in Texas: Spindletop, Moss Bluff, Newgulf, and Fannett - the most recent mine to be developed.

. . . . *is now operating at* **Beaumont, Texas**

THE WORLD'S NEWEST SULPHUR TERMINAL

. . . for Solid Sulphur

. . . for Molten Sulphur

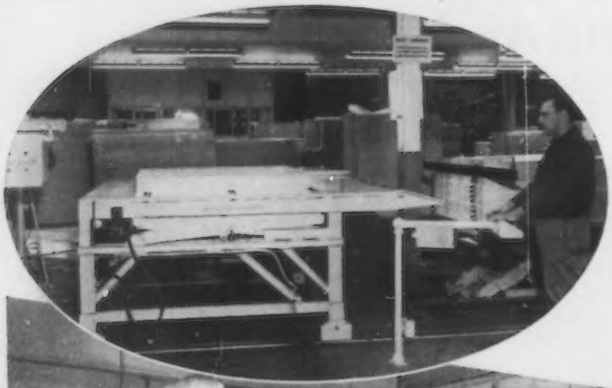
A few of the design features of this terminal may be of interest:

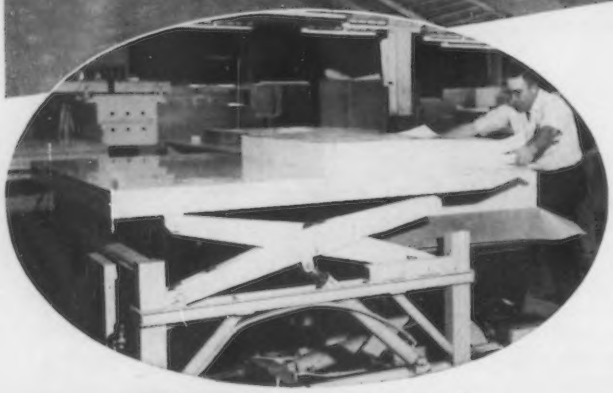
- **It receives, stores, and loads both solid and molten sulphur.**
- **It can load simultaneously 1 dry cargo ship of 20,000 tons capacity, 3 molten sulphur barges and 1 molten sulphur tanker. There's a holding dock where a second cargo ship can be tied up. The barge basin will accommodate 12 sulphur barges.**
- **Storage capacity totals 31,000 tons for molten sulphur and 1,000,000 tons for solid sulphur. Loading capacity for molten sulphur ranges up to 3,000 tons/hour, tanker and barge simultaneously; for solid sulphur the loading capacity is 1,200 tons/hour into ship or barge.**

This development at Beaumont is but another step in the broadening delivery service program now being carried out by TGS. Regional distribution centers, handling molten sulphur, are already in operation at Cincinnati, St. Louis and Tampa. Coinciding with the full operation of our main terminal at Beaumont will be the opening early in 1961 of two coastal terminals at Carteret, New Jersey, (26,000 tons molten sulphur storage) and Norfolk, Virginia (20,000 tons). Other terminals are in the planning stage.

TEXAS GULF SULPHUR COMPANY
75 East 45th Street, New York 17, N. Y.
811 Rusk Avenue, Houston 2, Texas
Sulphur Producing Units: **Newgulf, Texas • Spindletop, Texas Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming • Okotoks, Alberta, Canada.**

HOW SOUTHWORTH STRADDLE TABLES* *increased production* AT CONSOLIDATED





Photos Courtesy Consolidated Water Power & Paper Co

The highly mechanized layout illustrated actually increased trimmer output by 150% . . . for by its simplification the feeding of untrimmed paper and the piling of trimmed paper were expedited, enabling the trimmer to operate nearer to capacity.

This is another typical example of how a Southworth installation aids in cost reduction by a better use of existing facilities, by minimizing waste through better handling and by the improvement of safety conditions for the workers.

FOR DETAILS WRITE: SOUTHWORTH MACHINE CO., 272 WARREN AVE., PORTLAND, ME.

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*Lift Table Patents Pending

Paper Conditioners; Automatic Carton Sealer; Lift Tables; Air-Lift Tables; Cutters; Deliveries; Layboys; Skid Turners; Hand, Foot, Motor Driven Punching Machines; Humidifiers; Envelope Presses; Punch Heads; Tabbing Knives; Corner Cutters; Custom Built Allied Equipment.

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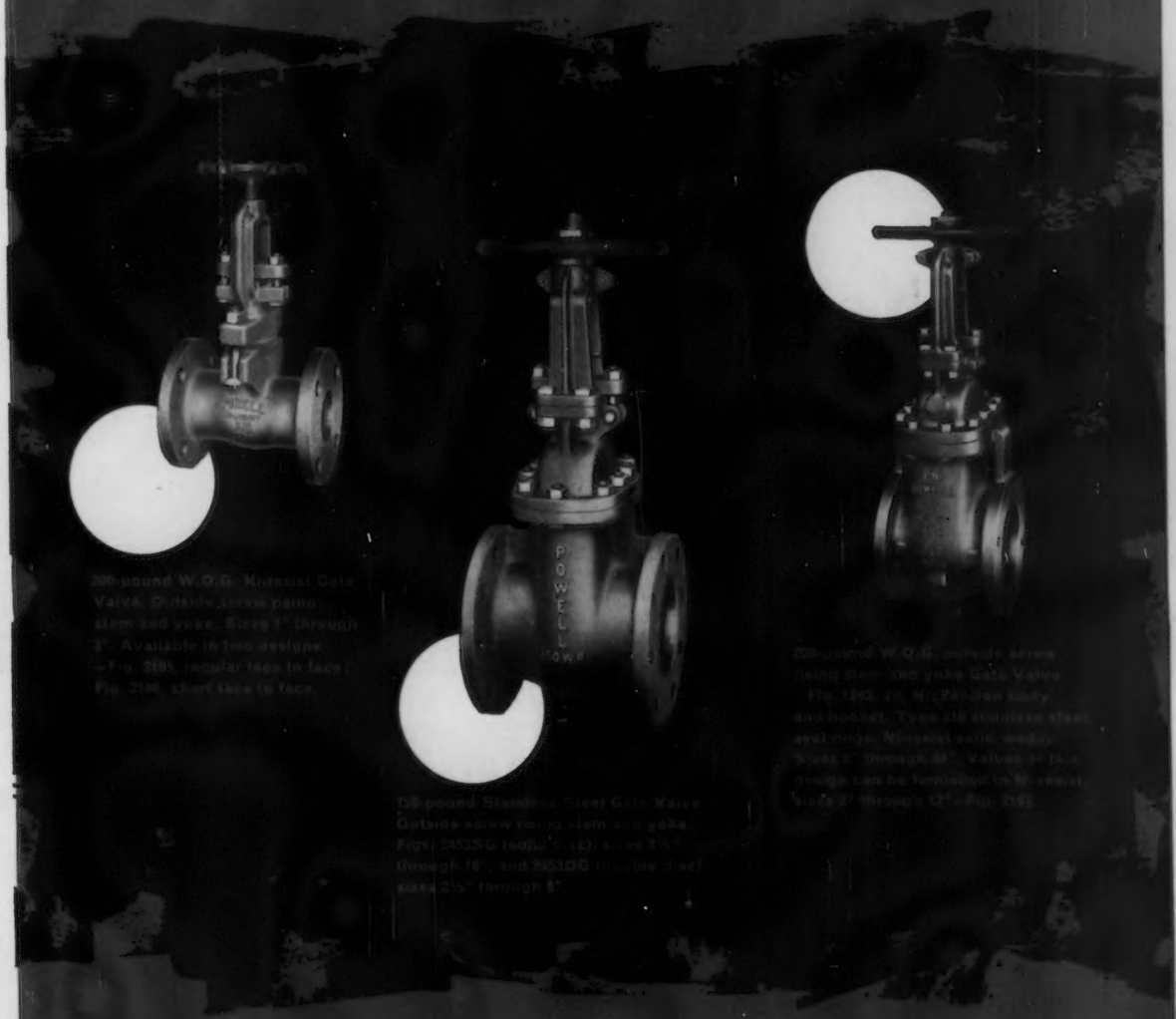
Powell Valves are available in many metals and special alloys to handle every need of the paper making industry. Also—Powell makes Digester Valves—on special order—for introducing wood chips into the digester, and for handling the flow of the digested pulp from the digester.

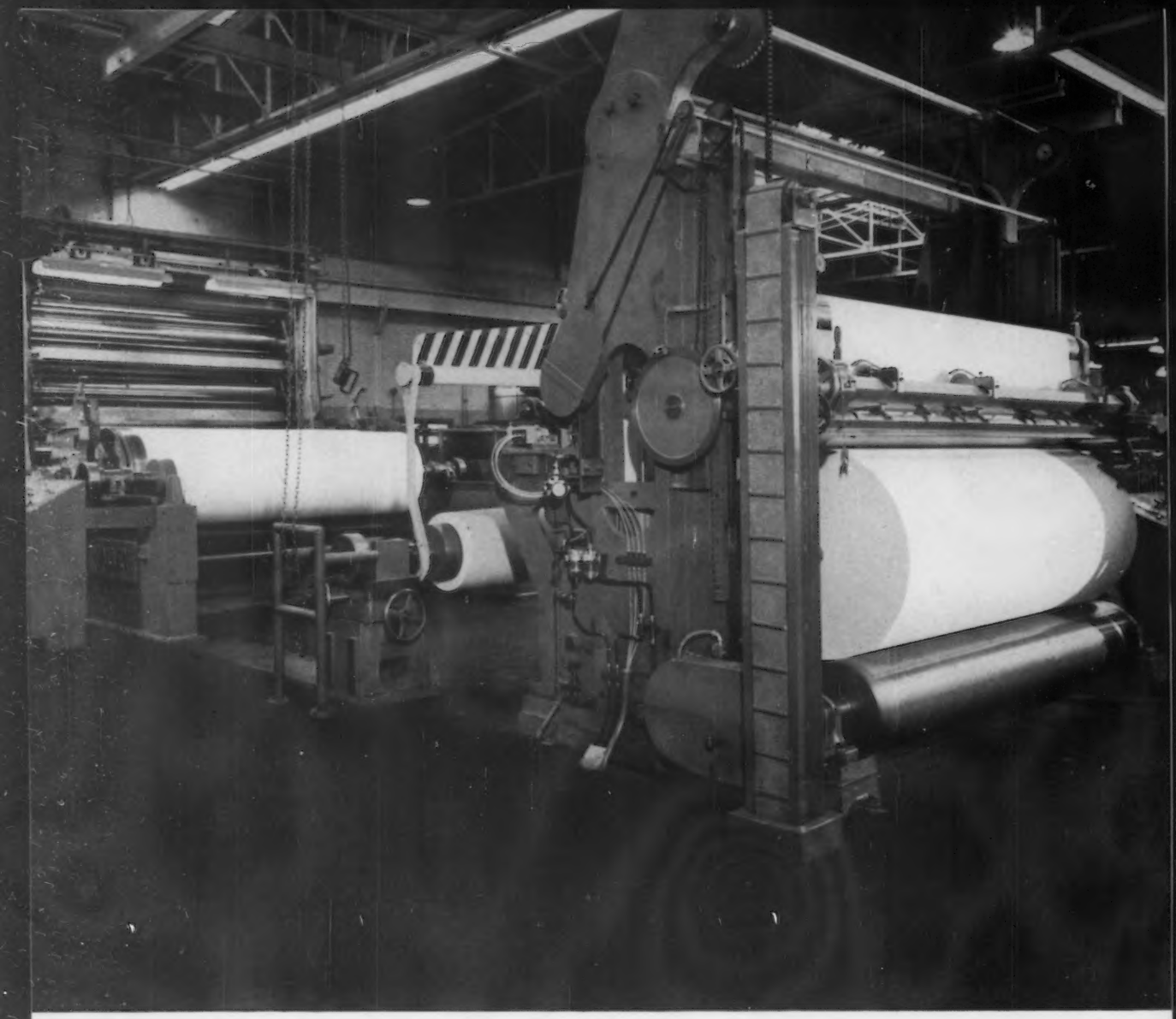
For complete information, contact the Powell valve distributor in your city or The Wm. Powell Company. Let Powell's 115 years of industrial valve manufacturing experience go to work for you.



115th year of manufacturing industrial valves for the free world

POWELL PAPER MILL VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO



Mill Modernizes...Eliminates Rewinding... Saves Time and Trouble

Extensive modernization by the Nekoosa-Edwards Paper Company includes the Kidder 110-inch Superspeed Mill Winder shown above — an important new installation at the Nekoosa plant.

In one operation this machine slits and winds rolls up to 60" in diameter . . . operates at 3000 feet per minute . . . has a multiple disc, water-cooled unwind brake and automatic, pneumatic tension control.

Advantages like these will help you meet today's requirements for paper machine efficiency speed and cut your finishing room costs. For details write to Kidder Press Company, Inc., Dover, N. H. Eastern Sales Office: Empire State Bldg., New York 1, N. Y. Midwest Sales Office: 400 Washington Bldg., Madison 3, Wis. West Coast Representative: Bojanower Machinery Service Corp., 5270 E. Washington Blvd., Los Angeles 22, California.

Make Good Impressions Faster with

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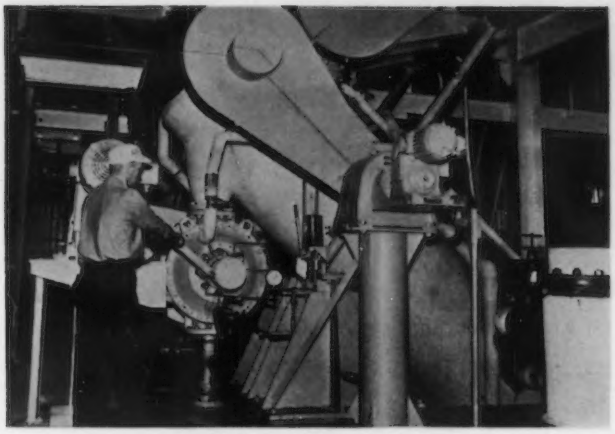
Slitters and Rewinders, Flexoprinter®, Letterpress and Gravure Presses

3 Types of Automatic Digesters To Increase Mill Capacity



M & D Continuous Digester.
Note inlet and discharge valve are on same floor level.

M & D DIGESTER (continuous) — Inclined tube type... makes controlled continuous digestion of chips practical. Suitable for wide variety of end products as units are engineered to your requirements. Completely automatic; reduces labor costs, improves uniformity. 90% of unit can be outdoors.

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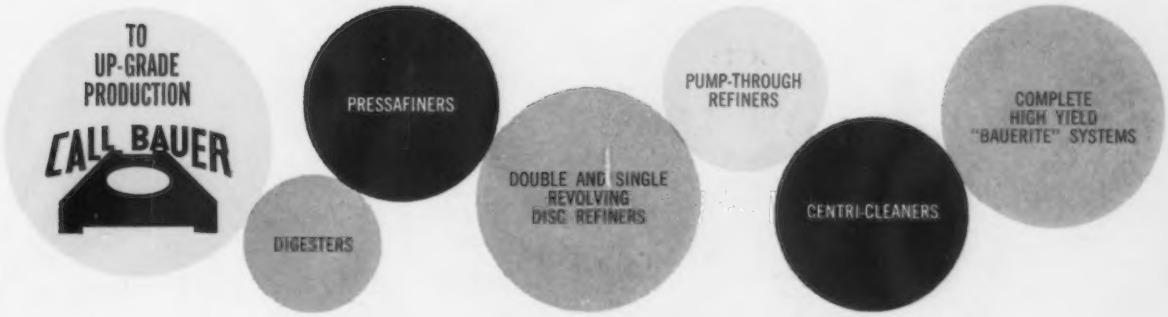

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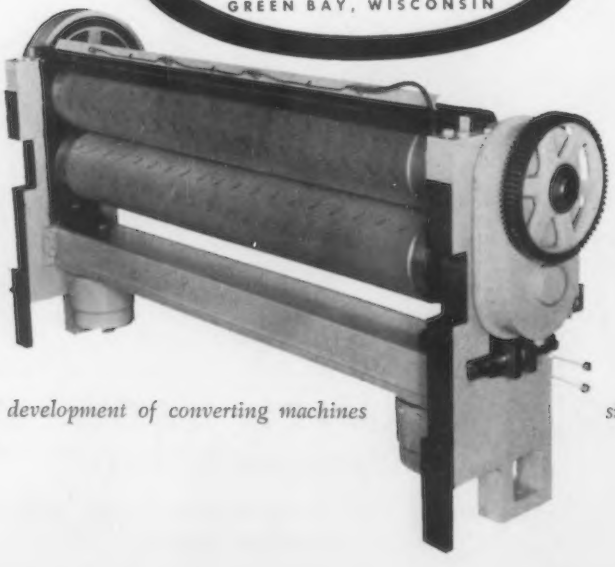
Model ME-60



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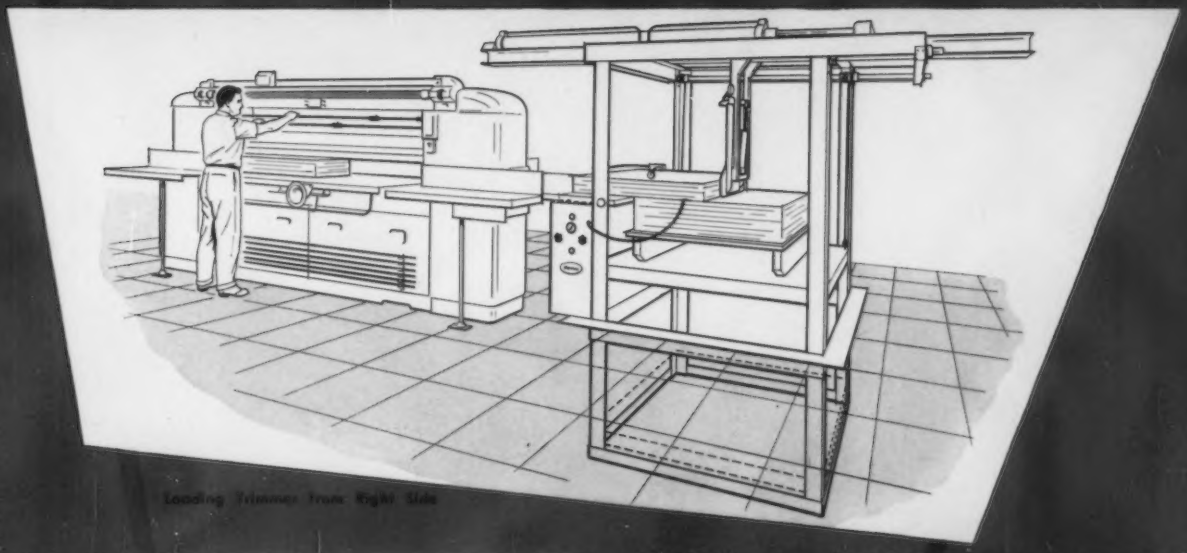
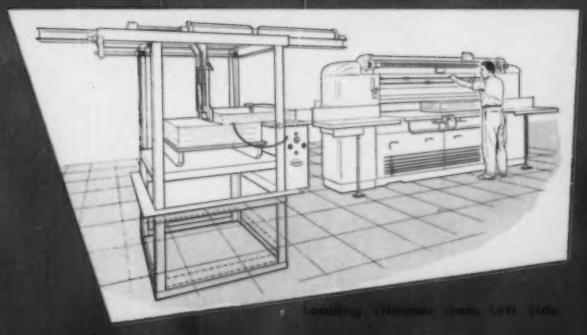


Loading Trimmer from Right Side



Loading Trimmer from Left Side

Loading Trimmer from Front

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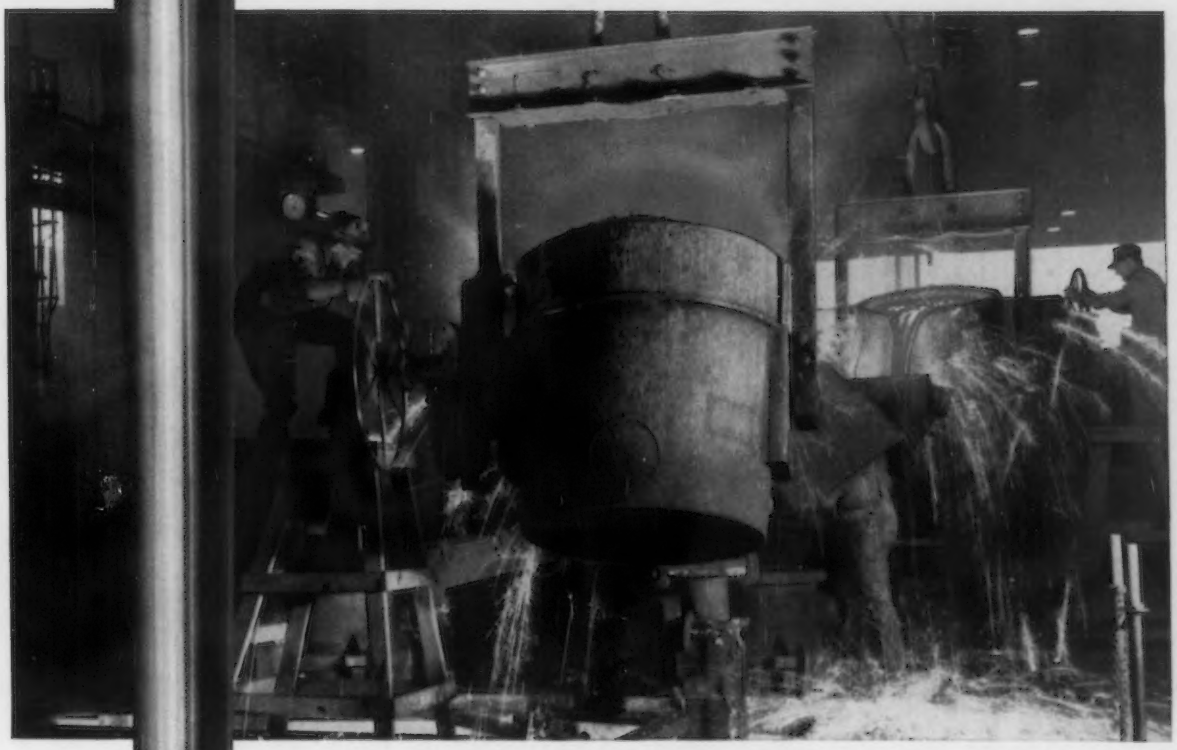
CHILLED IRON AND ALLOY CHILLED IRON

ROLLS

FOR PAPER AND ALLIED INDUSTRIES



- CHILLED IRON ROLLS
- MACHINE CALENDER STACKS
- ROLL GRINDING MACHINES
- ROLL CALIPERS
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leading manufacturer of wires for

BOOK PAPERS

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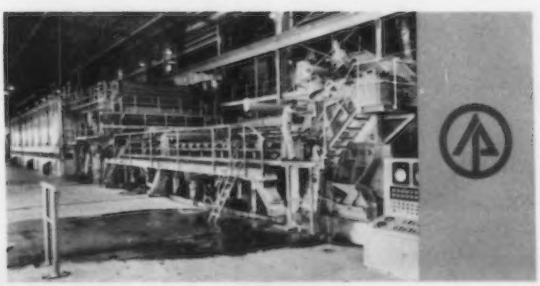
are good wires!

APPLETON WIRE WORKS, Corp. PLANTS AT APPLETON, WIS., AND MONTGOMERY, ALA.; INTERNATIONAL WIRE WORKS, MENASHA, WIS. AN AFFILIATED COMPANY

Heavy-Duty Pneumatic Reel, No. 3 Machine, International Paper Co., Southern Kraft Division, Pine Bluff, Arkansas S. O. CHRISTENSEN

International Paper Company



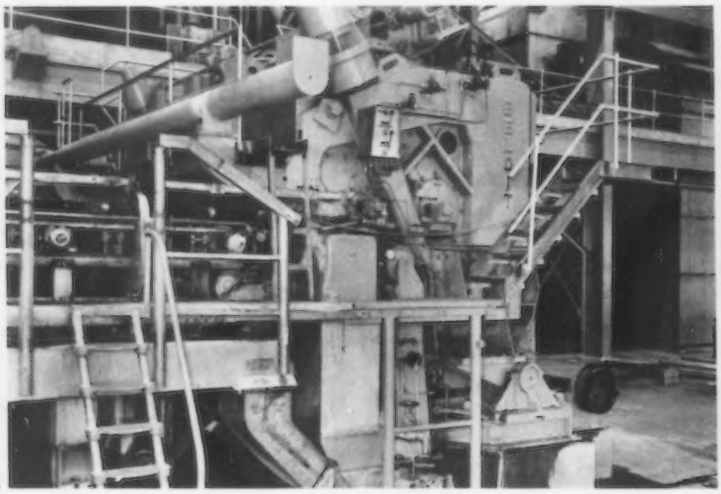
Southern Kraft Division, Pine Bluff, Arkansas

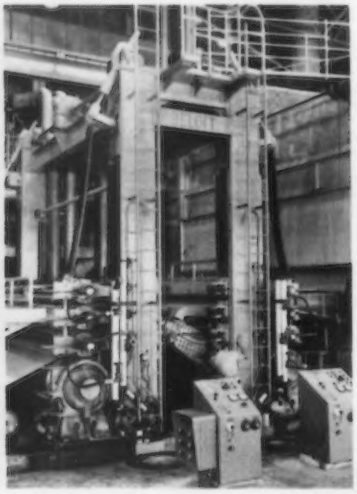
Pine Bluff's new 209" Fourdrinier paper machine is equipped to manufacture newsprint and directory paper to meet the expanding demand for these grades in the South. This is the third Beloit machine in operation at Pine Bluff. The first two machines began operation in mid-1958, producing newsprint and bleached kraft paperboard. For further views of the new machine, please turn the page.

. . . some views of the new 209″ Beloit Fourdrinier paper machine at Pine Bluff

(a) Beloit patented air-cushioned controlled-flow inlet showing a portion of the cantilever-type Fourdrinier. Design speed of this machine is 2000 fpm. **(b)** Twin open side Beloit calender stacks. The stacks are equipped with patented nip relief arrangement. **(c)** International Paper Company's Pine Bluff Mill. The new machine room is situated at left foreground. **(d)** Beloit Eastern Corporation 6000 fpm Model L Winder and heavy-duty unwind stand. **(e)** Twinver press arrangement; other press features include automatic suction pick-up and third suction press.

a





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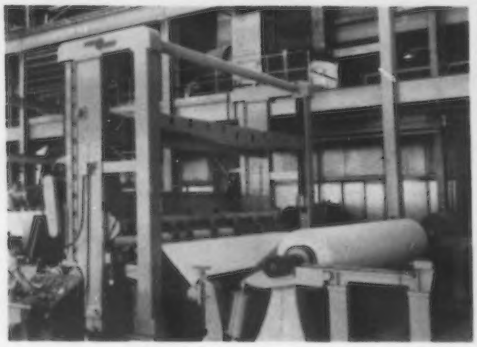

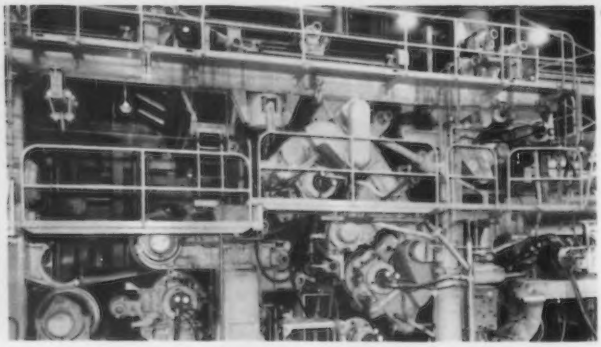

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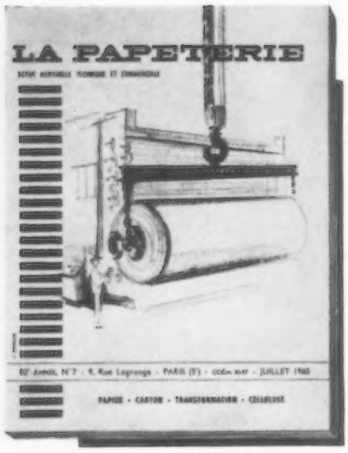

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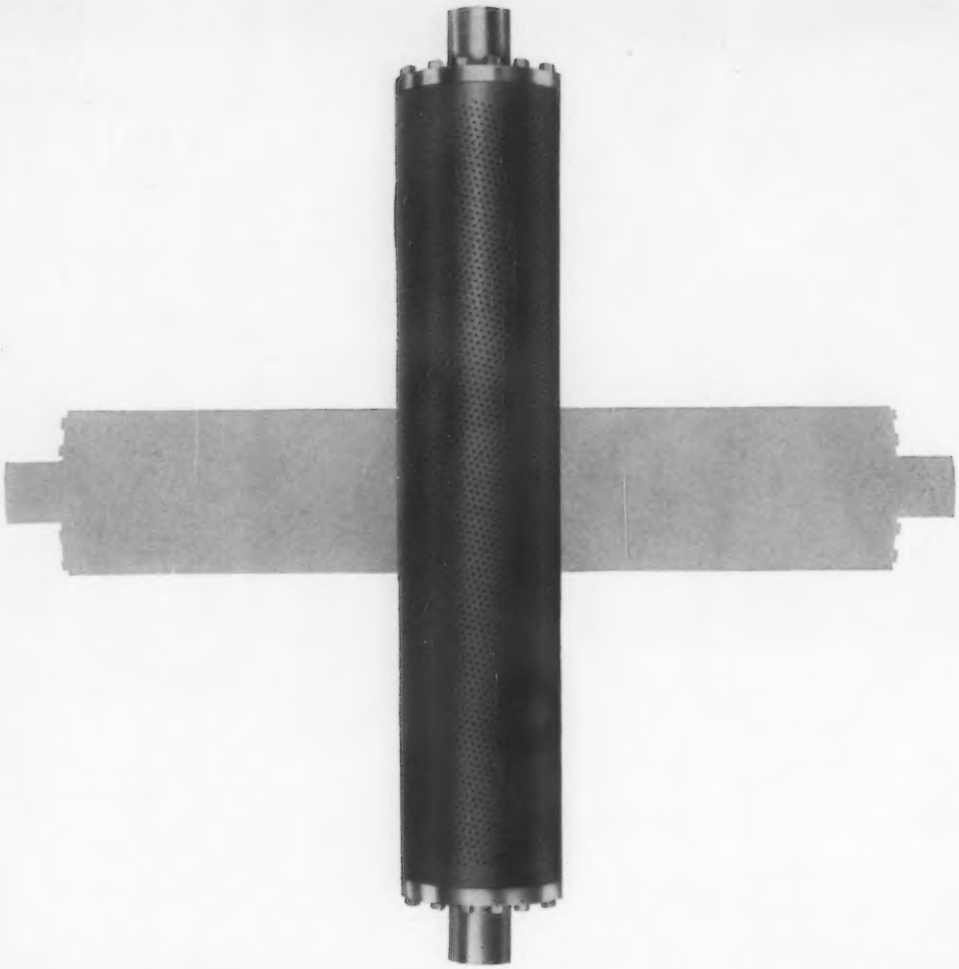

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Trends

Soviet Paper Shortage Forces Publication Curtailment

A serious shortage of paper has forced the Soviet Union to limit the circulation of newspapers, magazines and books, according to a report published in Pravda in late January. This represents a serious hardship because, as this editor noted when he was in the Soviet Union, the Russians are voracious readers. The government report criticized paper industry executives for failing to expand capacity as rapidly as promised and for gross inefficiency in allowing imported machinery to remain unused on mill sites, sometimes for years. Top priority is now being given to newsprint expansion. It was indicated that mills in order to meet tonnage quotas have resorted to running heavier basis weights.

Japan Attains 1960 Record

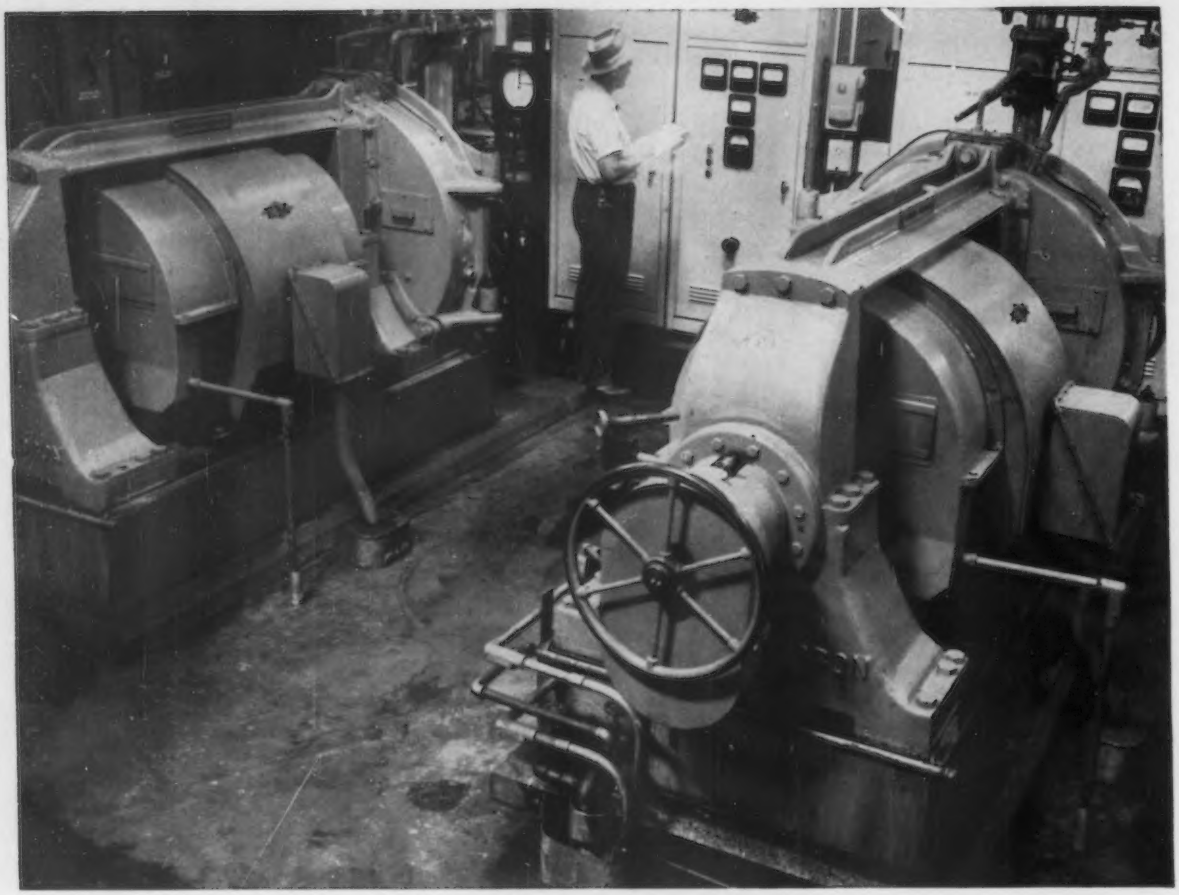
Estimates made by the Japan Paper and Pulp Association indicate that Japan produced 4.5 million metric tons of paper in 1960, an increase of 19 per cent above 1959. Production in 1961 is expected to increase to 5.3 million metric tons, while exports are estimated to reach 208 thousand tons.

Sweden Set New Records Last Year

New records were made by Sweden's paper industry in 1960. Production was up 15%, more than half of the output being newsprint and kraft paper. Europe remained Sweden's leading market, the Six accounting for 40% and EFTA for 28% of overall shipments as against 37 and 26%, respectively, in 1959. The largest individual purchaser is Western Germany, which in 1960 took 24% of Sweden's paper exports. Exports to non-European countries dropped from 32 to 28% of overall shipments, including a decrease from 11 to 10% for South America and from 3 to 2% for North and Central America.

In Case Anyone Was Puzzled

Our readers may have been puzzled by a sentence on Canadian wrapping paper output in last week's Trends. It should have read "Output of wrapping paper during 1960 was only marginally below the 1959 level, despite such adverse factors as the continuing trend to bulk shipment of products and the decline in activity in the building trades." The error occurred because the item was transmitted by long distance phone too late for checking.



Two of the 33 E-M Synchronous Motors driving refiners at Masonite. The motors are rated 450 hp, 900 rpm, unity or 0.8 leading power factor. The motor controls shown are high interrupting capacity, current-limiting SA-FUSE type — also manufactured by E-M.

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PAPER TRADE JOURNAL

WEEK OF FEBRUARY 6, 1961

Paper Mill Planned For Alberta

The Alberta West Forest Products Corp., Ltd., plans to build a $38 million pulp and paper mill in the Whitecourt area of northwestern Alberta, according to G. McNabb, president of Alberta West Forest Products, addressing the Engineering Institute of Canada. Construction is to start in May and initial production will be about 300 tons per day.

Pulp Mill to Be Built Near Buenos Aires

It has been announced that La Papelera Argentina, S. A., will build a new 50-ton-per-day pulp mill on the outskirts of Buenos Aires. The mill is designed to produce chemi-mechanical pulp from Argentine poplar.

Utilizing the Bauerite process, the new pulp mill design provides for a very simple, single-stage "bleaching on the fly" technique in which hydrogen peroxide is added at the chip fiberizing. Reaction is almost instantaneous and enables a substantial brightness increase in the pulp. Equipment and engineering services for the pulp mill are being supplied by United States Machinery Co., Inc.

It is intended that the pulp be used in the manufacture of tissue, newsprint, and board products. The utilization of locally available raw materials by this process allows a reduction in the amount of imported chemical pulps needed, thereby saving valuable dollar exchange.

This facet of the project has induced the Export-Import Bank in Washington to provide a loan of approximately two million dollars for the building of this pulp mill and the extending of the paper producing facilities.

Murray Resumes Lumberton Pulp Presidency

T. L. Murray has resumed the presidency of Lumberton Pulp Co. following a change in the company's board of directors.

Waldorf-Hoerner Mill in Full Operation

Expansion of Waldorf-Hoerner's pulp and papermaking facilities at the firm's Missoula, Mont., mill has recently been completed. As part of the program, pulp capacity has been doubled and a new 176-inch machine designed for the production of linerboard at the rate of 350 tons per day has been added.

Utilizing purchased chips for pulp production, the mill has negotiated long term supply contracts with 21 sawmills in western Montana.

The new kraft pulp and paper mill has seven digesters and makes use of the relatively new hot stock screening method. The mill is also equipped with a Deculator for removal of air from stock, Centriscreens, and Cyclean Centrifugal stock cleaners. The paper machine, with a speed range of 175 to 1750 f.p.m., has both primary and secondary headboxes and is equipped with a Flo-Vac unit, breaker stack, size press and double calender stack. Jumbo rolls produced are 12¼ feet long and up to 84 inches in diameter.

Hoerner Boxes acquired a 25 per cent interest in Waldorf Paper's Missoula mill in 1957, and in June 1959 the two firms became equal partners.

DIGESTER OPERATING FLOOR. One of the mill's seven kraft digesters is being loaded with chips from overhead conveyor.

NEW LINERBOARD MACHINE has 176 inch wire, is designed for production of 350 tons per day.

PAPER PEOPLE

Louis Calder, Jr.

J. I. Haney

Perkins-Goodwin Elects Officers

The board of directors of Perkins-Goodwin Co., international pulp and paper marketing-management organization, has announced the following elections:

Louis Calder, Jr., president, has also been elected treasurer; Richard T. Trelfa, executive vice president; John I. Haney, vice president and a director; John L. Quackenbush, manager, Chicago office, vice president.

Mr. Haney joined the Perkins-Goodwin organization on January 1, 1947, after 27 years in the operational and management end of the Brown Co. and two years as a vice president of Bagley and Sewell. He is a member of the board of directors and vice president in charge of operations of the Kennebec River Pulp and Paper Co., and a director of The Sanitary Paper Mills.

Stanford G. Blankinship has submitted his resignation as vice president, but will continue to serve as a director and consultant.

The headquarters offices of Perkins-Goodwin Co. were moved on January 16 to 1 Rockefeller Plaza, New York.

KVP-Sutherland Names Data Processing Manager

James Stephenson has been appointed manager of the data processing and methods department for the KVP and Sutherland divisions of KVP-Sutherland Paper Co.

Prior to the formation of this new department, the data processing and methods activities of both the KVP and Sutherland divisions were organized under separate departments.

Mr. Stephenson was formerly supervisor of methods for the Sutherland Division. He joined Sutherland in November 1953.

Robert Walters of the Sutherland Division has been appointed supervisor of data processing for the new department, and Robert Powell of the KVP Division has been appointed supervisor of programming and technical analysis.

Keck Advances At Rhinelander

Paul Keck, Kalamazoo native and Western Michigan University pulp and paper technology graduate, has been promoted by Rhinelander (Wis.) Paper Co. from chemist in the plant control laboratory to assistant to the paper mill superintendent.

Three Win Promotion At Crown-Zellerbach

Three transfers and promotions have been announced by the Camas division of Crown Zellerbach.

Lee A. Kelson who has been technical assistant to the paper mill superintendent, tissue, now becomes shift foreman for paper machines, wrap. He came to Camas as an industrial engineer on January 1, 1955.

Ed D. Frazer, technical assistant to the paper mill superintendent, wrap, now moves to technical assistant to the superintendent in paper machines, tissue. He came to Camas from Antioch, Calif., in October 1959 as division industrial engineer.

Roy Goulet is being promoted to the position of technical assistant to the paper mill superintendent, wrap. He came to Camas in December 1952 as field engineer, later becoming senior mechanical engineer, and process engineer. His present assignment is that of project engineer, paper machines and finishing.

C-Z Promotes Two, Adds Two at Research Center

Crown Zellerbach Corp. has announced promotions of two staff members at the Camas-based Central Research Division.

F. C. Ratliff, formerly technical director at Crown Zellerbach's Bogalusa, La., division, has been named manager for paper products development at the Camas installation. Mr. Ratliff joined the Bogalusa staff in 1936 as a chemist. He holds a master of science degree in chemical engineering from Louisiana State University.

J. G. Coma has been advanced from associate engineer at the Chemical Products Division to supervisor, chemical process research, in the Central Research Division. Mr. Coma started with the development laboratory as an engineer in 1955 and was named associate engineer in the chemical products division in 1956. He is a 1949 graduate of Washington State University with a B.S. degree in chemical engineering.

C-Z also announced that N. J. Lasater and D. R. Blow have joined the staff of the Central Research Division.

Mr. Lasater has assumed duties as an assistant chemist in the paper products service section. A Navy veteran, he holds a B.S. degree in organic chemistry from Oregon State College and is now studying for his master's degree in that field. He was formerly employed at the Western Pine Ass'n. laboratory in Portland, Ore.

Mr. Blow is serving as an associate engineer with the division's paper specialties development section. He received his B.S. degree in chemical engineering from Oregon State College and later took extension courses in space technology at UCLA. Prior to joining Crown Zellerbach he worked for Convair Astronautics and North American Aviation in California.

Aird Announces Sales Appointments

Following merger of the pulp and paper sales forces of Howard Smith Paper Mills, Ltd., Alliance Paper Mills, Ltd., Canada Paper Co., and Don Valley Paper Co., Ltd., W. H. Aird, vice president of sales, announced the appointment of J. R. Nixon as general sales manager and Philip Sanford as assistant general sales manager.

Mr. Nixon will continue to make his headquarters in Toronto, Ontario, and Mr. Sanford will be resident in Montreal.

R. R. Helf

Hamersley Names Sales Manager

The Hamersley Manufacturing Co., Garfield, N.J., manufacturer of glassine and greaseproof papers, has announced the promotion of Robert R. Helf to the position of sales manager for the firm. Prior to his employment by Hamersley in May of 1960, Mr. Helf was with The Marathon Division of The American Can Co., and has some 14 years experience in the paper industry.

Caldwell of Eddy Paper Announces Retirement

At a meeting of the board of directors on January 18, R. F. Caldwell announced his retirement as president and managing director of Eddy Paper Co., Ltd., and its operating subsidiary The E. B. Eddy Co. Mr. Caldwell joined the company 43 years ago and was appointed president and managing director in January 1957.

W. D. Moffatt, vice president of Eddy Paper, and vice president, sales, of the E. B. Eddy Co., has been appointed president and managing director of both companies to succeed Mr. Caldwell.

Lucien G. Rolland, president of Rolland Paper Co., Montreal, who is the newly elected chairman of the executive board, Canadian Pulp and Paper Ass'n.

Fairborn Elected Keyes Fibre Director

At a meeting of the board of directors of Keyes Fibre Co. January 27, Robert G. Fairburn was elected a director to fill a vacancy.

Dwight S. Brigham, board chairman stated, "Mr. Fairburn was for many years president of The Diamond Match Co. He resigned as chairman and director of its recent successor, Diamond National Corp., in the latter part of 1960 and no longer has any financial interest in that company. Mr. Fairburn brings to Keyes Fibre Company a wide knowledge of the molded pulp industry and the directors feel that he will add material strength to the board."

Improvement Program at Crossett Nears Completion

Crossett Paper Mills is nearing completion of a $1,770,000 improvement project on its lightweight kraft paper machine, J. C. Hair, manager, announced. This includes the installing of a new head box, new breaker stack, four air driers, and converting the machine's size press to a new type.

The program is designed to improve the quality of kraft paper from this machine and expand production volume by 15 tons per day. The changes will also make possible the manufacture of some new grades of lightweight kraft paper.

"This installation will allow Crossett Paper Mills to provide a wider range of improved kraft paper products to the trade," declared Jack W. Taylor, sales manager.

Mead Subsidiary Promotes Crawford

Promotion of William E. Crawford to production manager for The Wrenn Paper Co., Middletown, Mead subsidiary, has been announced.

In his new position, Mr. Crawford is responsible for the company's production of technical papers which are used extensively in the laminating plastics industry. He has been a member of Wrenn's sales department since joining the papermaking firm in 1946. From 1940 to 1942 he was a laboratory technician at Sorg Paper Co.

W. H. Aiken

Union Bag-Camp Names R and D Director

Union Bag-Camp Paper Corp. has announced that William H. Aiken will join the company on February 15 as director of research and development.

A graduate of Texas A & M College with a B.S. degree in chemical engineering, Dr. Aiken's academic background also includes an M.S. degree and Ph.D. degree from the Institute of Paper Chemistry.

Prior to joining the Union-Camp organization, Dr. Aiken directed research and development for Gardner Board and Carton Co. and its successor, the Diamond Gardner Corp.

Crossett Appoints Eastern Sales Manager

John Langhout has been appointed eastern sales manager for Crossett Paper Mills.

Mr. Langhout replaced Jack W. Taylor, who was promoted recently to sales manager of the company. Mr. Langhout has had 13 years experience in paper sales. He will be responsible for all sales in Crossett's New York, Cincinnati, and Atlanta territories.

Weyerhaeuser Reorganizes Longview Branch

The reorganization of the Longview pulp and paperboard branch of Weyerhaeuser Co. has been announced. Changes in the organizational structure of the Longview branch will result in reassignments of key personnel there and at the company's Everett and Twin Harbors branches.

J. R. Callahan, Jr., who has been serving as assistant branch manager at Longview, will become production manager, board, and will continue to act for the branch manager in his absence.

Andrew A. Broz, who has held the post of technical director of the Everett sulphite mill, will become production manager, pulp, at the Longview branch.

Mr. Callahan received a B.A. degree from Reed College, Portland, and a B.S. degree from Massachusetts Institute of Technology, Cambridge, in 1944. A World War Two veteran of the U. S. Marine Corps and the U. S. Navy, he joined Weyerhaeuser in 1946 as a junior engineer. He was appointed assistant branch manager at Longview in 1957.

Mr. Broz joined Weyerhaeuser as a chemist at the Everett mill following his graduation from the University of Washington where he received B.S. degrees, in chemical engineering and in industrial engineering. He became technical director of the Everett mill in 1959.

The duties of technical director will split, with the present director, Arthur E. Erickson, becoming technical director-pulp, and Charles Koon, who recently joined Weyerhaeuser, becoming technical director-board. Grant M. Eade, office manager of the Everett lumber and plywood branch, was named office manager of the Longview pulp and paperboard branch.

Three other assignments were announced. Robert H. Quick, assistant technical director, paperboard, at Longview, will become technical coordinator, board; Glenn E. McAfee, Longview mill sales representative, becomes coordinator of sales of pulp and board with the additional responsibility for export shipments; and Glen W. Potter, pulpwood buyer at Longview, will be coordinator of wood source and supply.

One other change resulting from the reorganization was R. A. Kamps, of Raymond, from office manager and purchasing agent of the Twin Harbors lumber and plywood branch, to office manager of the Everett lumber and plywood branch.

T. C. Catlin

Catlin Joins Riverside Paper as Mill Manager

Appointment of Thomas C. Catlin as mill manager of Riverside Paper Corp. has been announced. Mr. Catlin formerly was mill manager, a vice president and member of the board of directors of the Gilbert Paper Co. of Menasha, Wis., since November a division of the Mead Corp., Dayton, Ohio.

Mr. Catlin, a 1939 graduate of the University of Wisconsin with a degree in chemical engineering, was employed as a project engineer at Marathon Corp. in Menasha through 1942.

Mulholland Becomes PCA Vice President

J. C. Mulholland, a veteran of 25 years in the paper and paperboard industries, has been appointed vice president of sales for the Paperboard Division of the Packaging Corp. of America. Mr. Mulholland, formerly sales manager of Crossett Paper Mills, will be located at company headquarters in Evanston, Ill.

Also announced by the company were the appointments of John A. Oakes and Robert J. Karlen, and the retirement of F. O. Kanehl.

Mr. Oakes has been named general sales manager, Paperboard Division, central region. He formerly was manager of the company's Filer City mill, and at one time was with American Box Board Co.

Mr. Karlen, who has been appointed assistant director of traffic and transportation, formerly was traffic manager of the company's Eastern region. He joined the traffic department of the former Ohio Boxboard Co. in 1940 as assistant traffic manager becoming traffic manager in 1948.

Mr. Kanehl, a vice president and treasurer of the former Ohio Boxboard Co., and a financial executive of PCA, has retired from executive duties. He joined Ohio Boxboard in 1940 as controller from a managerial position with the accounting and auditing firm of Arthur Anderson and Co. He also served the Ohio Injector Co. of Wadsworth, Ohio, as vice president and treasurer, positions from which he is also retiring.

Chemcell Group Names Traffic Superintendent

W. R. Hollinger has recently been appointed traffic superintendent of the Chemcell group of companies, which includes Columbia Cellulose Co., Ltd., Canadian Chemical Co., Ltd., Celgar, Ltd., and Chemcell Fibres, Ltd. He joined Canadian Chemical at Edmonton in 1953 following seven years with the Canadian Pacific Railroad and transferred to the Vancouver traffic office in 1958. In his new position Mr. Hollinger will assume increased responsibilities for co-ordinating activities of the general traffic department, direct analysis of freight costs, and assist in planning freight cost reductions.

Scott Paper Advances Barr to Plant Engineer

Clarence R. Barr, maintenance engineer, at the Anacortes plant of Coos Bay Pulp Corp. has been promoted by Scott Paper to plant engineer at the Empire, Ore. division.

Mr. Barr came to Anacortes in May 1956 as an assistant in the engineering department and was later assigned to maintenance engineer.

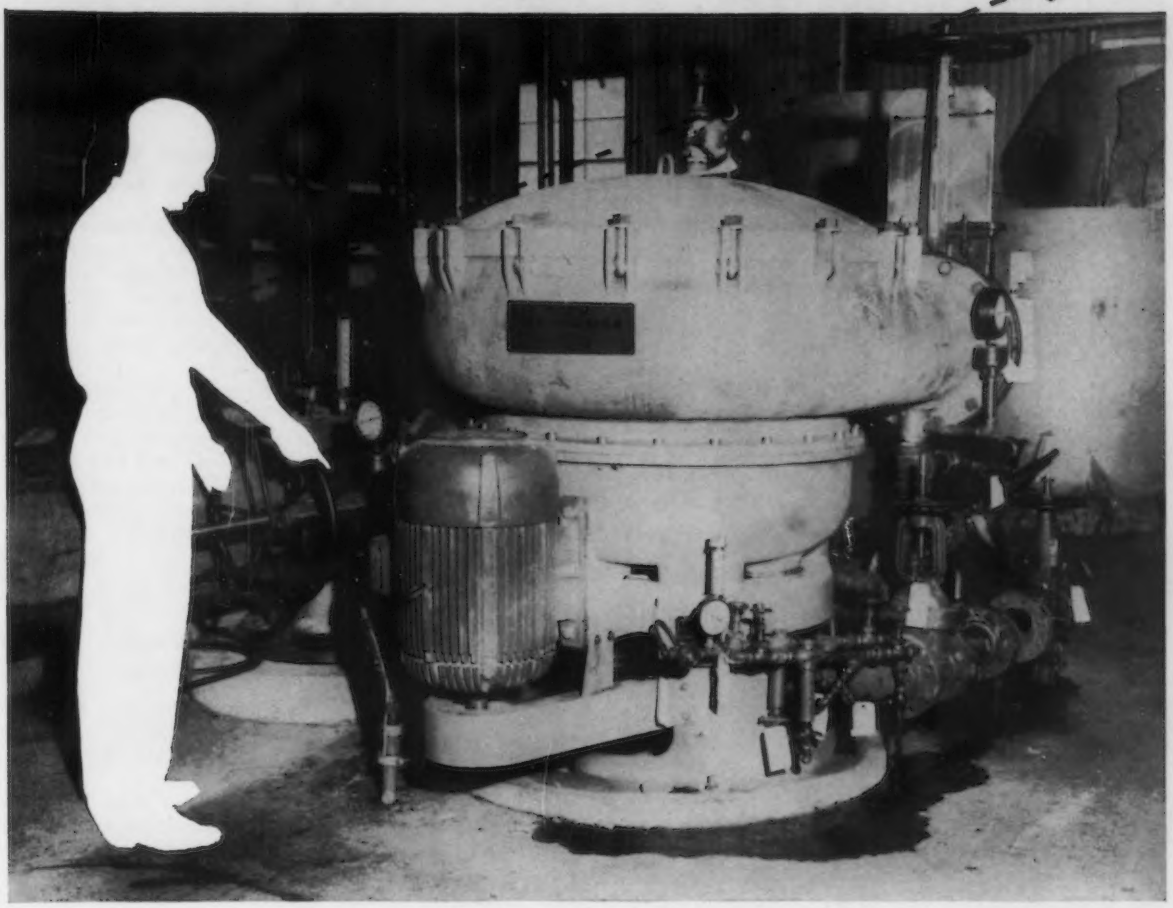
Edward H. Reincke, maintenance planning engineer, Scott Paper Co., Everett, is being promoted to maintenance engineer at the Anacortes plant to replace Mr. Barr. Mr. Reincke joined Scott's engineering department in January 1953.

Harris Named Controller By Champion Paper

J. W. Harris has been named controller of the Champion Paper and Fibre Co., of Hamilton. He succeeds Homer L. Dillard, controller since 1945, who has retired from the post but who will remain with the firm in a consulting capacity.

Mr. Harris started to work for Champion in 1933 as a woodyard laborer at the firm's Carolina Division, Canton, N. C., after attending Wingate Junior College. He later was graduated from North Carolina State College with a B.S. in chemical engineering.

WHAT CENTRISCREENING DOES FOR *You*



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The Model 10 Centriscreen — capacity up to 3000 gpm.

The Model 6 Centriscreen — capacity up to 1200 gpm; ideal for small Fourdriniers and for cylinder machines requiring one screen per mold.

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NEWS OF CONVERTERS

Expansion Plans Announced By Carolina Paper Box

Two major changes of an executive nature and plans for expansion of Carolina Paper Box Co. at Burlington, N. C., have been announced by Bill Price, president of the company.

A new research and development division has been inaugurated and will be headed by Lawrence S. Harvey, vice president of the firm.

In keeping with a more aggressive marketing and merchandising policy, Mr. Price announced the reaffiliation with the corporation, effective immediately, of Joseph L. Linens. Mr. Linens will assume charge of setup paperbox sales of the corporation to the clientele of customers in the local area. In addition, he will assist in the production program related to these sales.

Riegel Forms Carton Development Group

Riegel Paper Corp. has announced the formation of a Product Development Group for folding cartons. Raynor Holmes of the Bloomer Division and Bruce Schrier of the Specialty Products Division have been assigned to the group which will report to Dr. C. R. Calkins, corporate director of research and development. The group will be responsible for evaluation and development of functional cartons, as well as the co-ordination of cartons and packaging machinery.

G. L. Cobb

Brown & Bigelow Names New General Manager

George L. Cobb has been named general manager of Brown & Bigelow, advertising specialties and printing firm in St. Paul, Minn.

His appointment was announced by R. Carl Chandler, board chairman and chief executive officer of Standard Packaging Corp., New York, with which Brown & Bigelow was merged last year.

Mr. Chandler, who had himself filled the post of general manager at Brown & Bigelow since the merger, also announced Mr. Cobb's election as a vice president of Standard.

Mr. Cobb comes to Brown & Bigelow from the vice presidency of Unimatic Merchandisers, Inc., a division of Universal Match Co. He was previously president of the S. H. Kress Co. variety stores chain. Prior to that, he was president of Zellers' Ltd. Montreal, Canada, a variety chain affiliated with the W. T. Grant Co.

From 1942 to 1955, Mr. Cobb held several executive positions with W. T. Grant in the U.S. His career began with Montgomery Ward as a trainee in 1935. He rose to district manager. He is a 1935 graduate of the University of Maine in business administration and economics.

Reiniger Named V-P of Longview Fibre Subsidiary

Longview Fibre Co. has announced that W. Q. Reiniger, manager of the company's Los Angeles, Calif., box plant, will be promoted March 1 to vice president of General Fibre Box Co. of Springfield, Mass., a wholly owned subsidiary.

Roy B. Slotten, who started in the Longview box plant in 1943, and who is presently superintendent of the Oakland box plant, will become manager of the Los Angeles box plant.

Gordon E. Richards, general foreman at the Oakland box plant, becomes superintendent of the operation.

Loeffler to Manage A. M. Collins Plant

William G. Loeffler, Jr., has been appointed manager of the A. M. Collins plant of International Paper Co. in Philadelphia.

The A. M. Collins plant manufactures specialty coated papers and has been well known for over 100 years for its quality coated cover papers and fancy embossing.

Mr. Loeffler has been with the A. M. Collins plant since 1955, where he started as finishing room superintendent. He was made production manager several years later, which position he held until his present appointment.

(Continued on page 34)

HYDRAPULPER WITH VOKES ROTOR
VERY SUCCESSFUL AT Weyerhaeuser

Weyerhaeuser Company
Pulp and Paperboard Division

Springfield Branch
Springfield, Oregon

October 5, 1960

Mr. Don H. Montville, Vice President
The Black-Clawson Company
Middletown, Ohio

Dear Don:

It will certainly be of interest to you to know that we have been very satisfied with the performance of the new Hydrapulper recently installed in our mill here at Springfield, Oregon.

The new design incorporated in this unit has proved itself in two ways:

1. Its ability to turn baled pulp and cull board into slush stock very rapidly.
2. The capacity of the unit is actually greater than was anticipated.

It is our opinion that your new design has been a substantial improvement, making this a most successful unit.

We have also been very pleased with the operation of the guillotine cutter used for cutting rolls of pulp and cull paperboard for furnishing ahead of the pulping unit.

We feel you have made a substantial contribution to the industry with your new design.

Sincerely yours,

J. O. Julson
J. O. Julson
Branch Manager

JOJ:bh

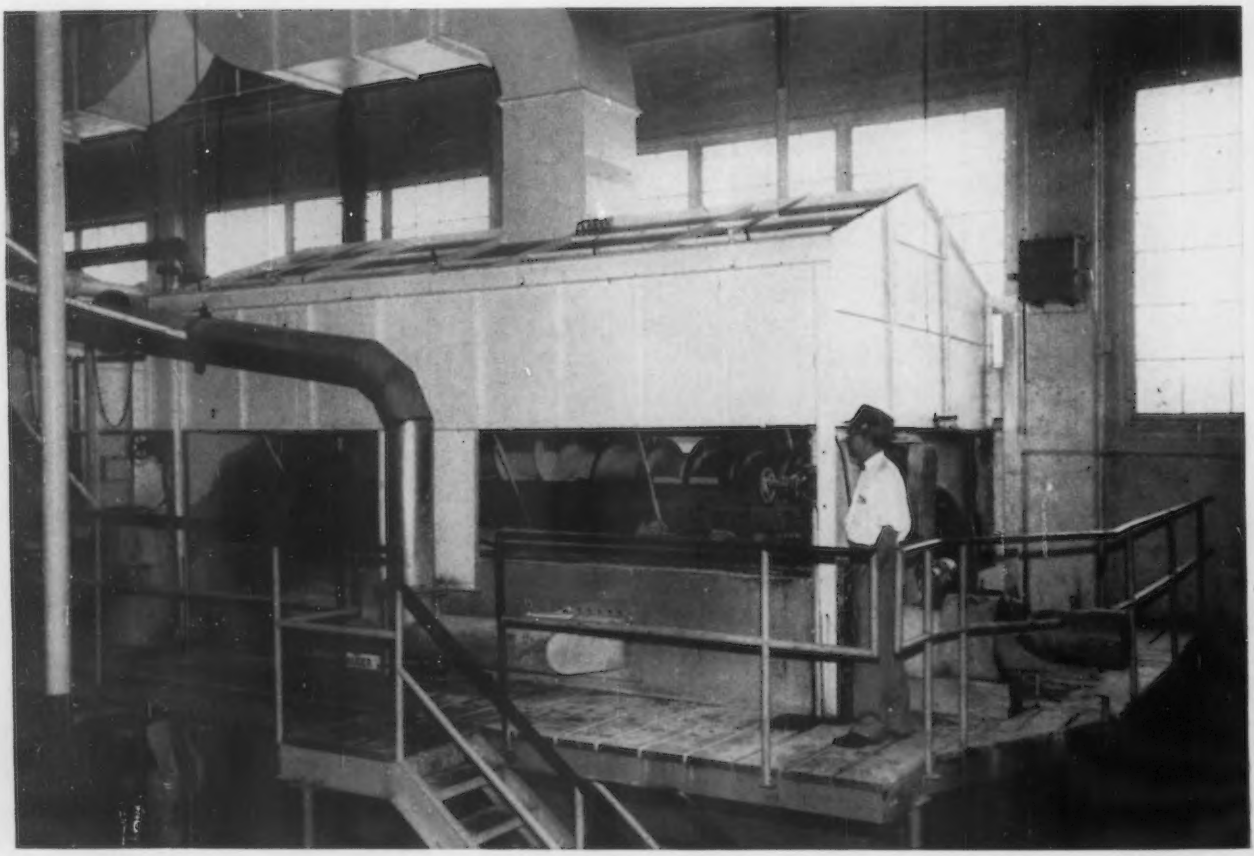
This Black-Clawson installation combines a Hydrapulper® unit equipped with a Vokes Rotor to provide a near perfect degree of defibering in a very short time. Conveyorized hydraulic roll splitter automates the Hydrapulper charging operation. Perhaps you can use this combination of equipment to improve your production. Let's talk it over. Contact the Shartle Division—Middletown, Ohio Garden 2-4561. Ask for Messenger No. 371.

SHARTLE DIVISION
Middletown, Ohio
COMPLETE STOCK PREPARATION SYSTEMS

BLACK-CLAWSON

New large design

OLIVER® DENHARD
handles 160 tons daily



OLIVER DENHARD DISCHARGER on 8' x 16' groundwood washer at Elk Falls Company Limited, division of Crown Zellerbach Canada Limited, Vancouver Island, B.C. Pick-up roll is 15½" O.D. Unit operates at a speed of 4 R.P.M. on the washer, handling up to 200 AD tons daily.

DISCHARGER

on a groundwood washer

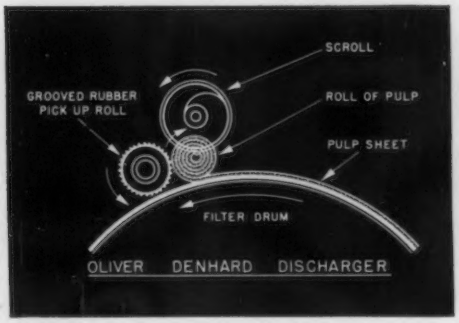
at Crown Zellerbach plant

For many years the Oliver Denhard Discharger has been successfully used on vacuum type groundwood thickeners. Now a large size has been developed which not only permits higher R.P.M. (and thus capacity) on groundwood thickeners, but also makes it practical to use this efficient device on groundwood washers, involving much higher tonnages than previously contemplated.

For example, Elk Falls Company Limited, a division of Crown Zellerbach Canada Limited, has recently put into operation a Denhard Discharger on a groundwood washer handling 160 AD tons daily. A second unit has been ordered. A Denhard Discharger of similar size is also being used on a vacuum groundwood thickener, permitting cylinder speeds in excess of 7½ R.P.M.

The Denhard Discharger on a groundwood washer makes possible a higher discharge consistency—in the order of 8 to 9% AD—than the conventional hydraulic doctor. Water consumption of the hydraulic doctor is eliminated, resulting in a higher stock temperature and a reduction in the amount of slime formation.

If you already have an Oliver Denhard Discharger in operation with a groundwood thickener, use of this new, larger size may permit a faster cylinder speed and higher capacity. Installation in place of a conventional hydraulic doctor on a groundwood washer will pay immediate dividends in terms of higher discharge consistency and saving of water. Write to Dorr-Oliver Incorporated, Stamford, Conn.



SIMPLE OPERATION of the Oliver Denhard Discharger is shown in this diagram. A grooved rubber pick-up roll starts the pulp sheet rolling up on itself like a carpet. A scroll carries the pulp to either end of the unit for discharge. Since nothing touches the facing wire but the pulp itself, maximum wire life is assured, together with a minimum of wire blinding.

DORR-OLIVER

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

Servo Power satisfies more

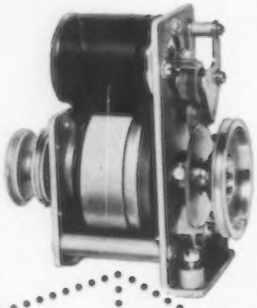
in Taylor TRANSCOPE® Electronic and Pneumatic

Powerful SERVOMATIC motors in Taylor TRANSCOPE Recorders not only give you greater recording accuracy than ever before, they also supply the power necessary for precision operation of auxiliary mechanisms and computing devices. Power in the pneumatic servo is 150 times greater than the bellows type; in the electronic it's 1,000 times greater than galvanometer systems.

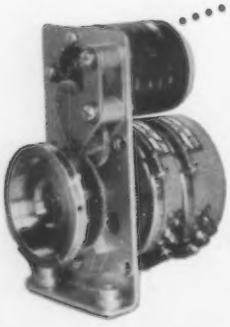
This means closer measurement of temperature, pressure, flow, flow ratios, pH and other process variables—whether the signals are pneumatic or electric. Accuracy of ½ of 1% is standard, ¼ of 1% optional.

You economize with servo power because you no longer need conventional "black boxes" for auxiliary functions. You save on panel space . . . and installed cost.

Optional features made possible by servo power include integral process alarms, retransmitting potentiometers, function generation and digital output with encoder discs. Ask your Taylor Field Engineer to demonstrate the built-in plus value of servo power in the TRANSCOPE line. Or write for **Bulletin 98286** (Pneumatic) or **98335** (Electronic). Taylor Instrument Companies, Rochester, New York, or Toronto, Ontario.

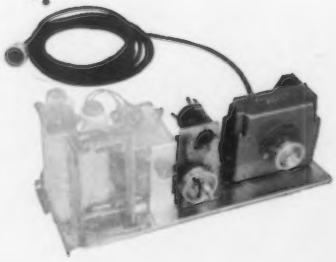


700J ELECTRONIC SERVO MOTOR
Precision gearing couples servo to a precise feed-back device with high torque. Built to military specifications.



RETRANSMITTING POTENTIOMETER
permits numerous computations such as xy, $\frac{x}{y}$, $\frac{xy}{z}$, $\sqrt{x}$.

INTEGRAL ALARMS
cost approximately 1/3 as much as conventional external "black boxes".

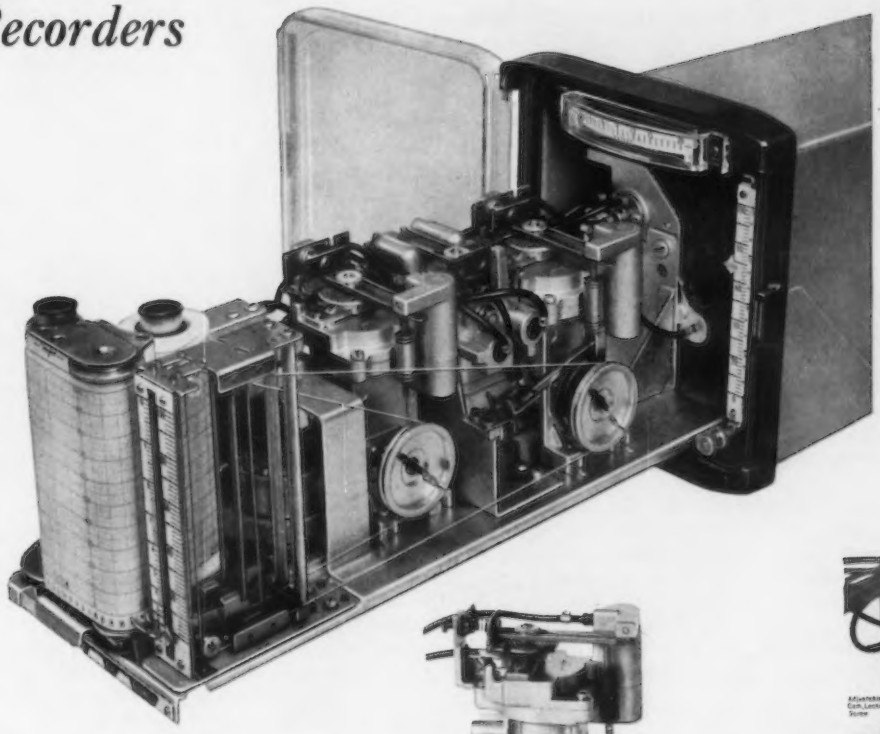


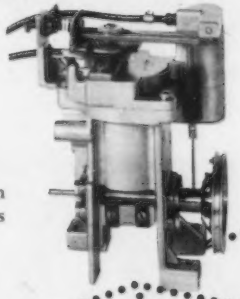
DIGITAL ENCODER
—servo motor permits use of compact, high accuracy, integral encoders.

Taylor Instruments

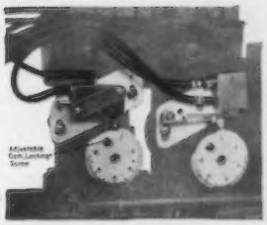
process needs more economically

Recorders

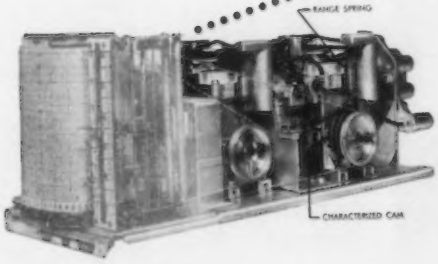




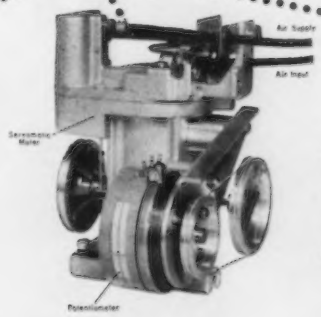
90J PNEUMATIC SERVO MOTOR
Essentially a power piston with built-in positioner. Solid construction assures long, trouble-free life.



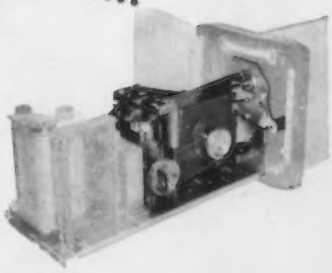
INTEGRAL ALARMS
Alarm points convenient to set on calibrated dials.



FUNCTION GENERATOR
puts square root extraction and other similar functions within recorder.



POTENTIOMETER
costs about half as much as usual "black box" transducers.



DIGITAL ENCODER
sets new standards of accuracy for pneumatically driven encoders.

MEAN ACCURACY FIRST

NEWS OF CONVERTERS

(Continued from page 28)

Rap-In-Wax Forms European Subsidiary

A wholly owned subsidiary of the Rap-In-Wax Co., Twin Cities based flexible packaging firm, has just been set up, according to John J. Ahern, Jr., chairman, and P. M. Grieve, president. Called "Rap-In-Wax A.G.," the new company will operate out of headquarters in Zug, Switzerland. Mr. Ahern is chairman of the Swiss subsidiary.

Technical manager of this International Division is A. M. Walter, who has a broad background spanning many years in the flexible packaging field. A citizen of Canada, Mr. Walter is a graduate of McGill University in Montreal. His most recent post was manager of a flexible packaging converting plant in Vienna, Austria.

Messrs. Ahern and Grieve pointed out that formation of the European subsidiary is the beginning of bringing Rap-In-Wax's technical and managerial sales know-how into partnership with independent European packaging converters in various countries. As the first step to put the program to work, they announced that Rap-In-Wax A. G. has acquired a substantial interest in Rationelle Verpackung, located near Zurich.

Duren Joins N. Y. Sales Staff of Keyes Fibre

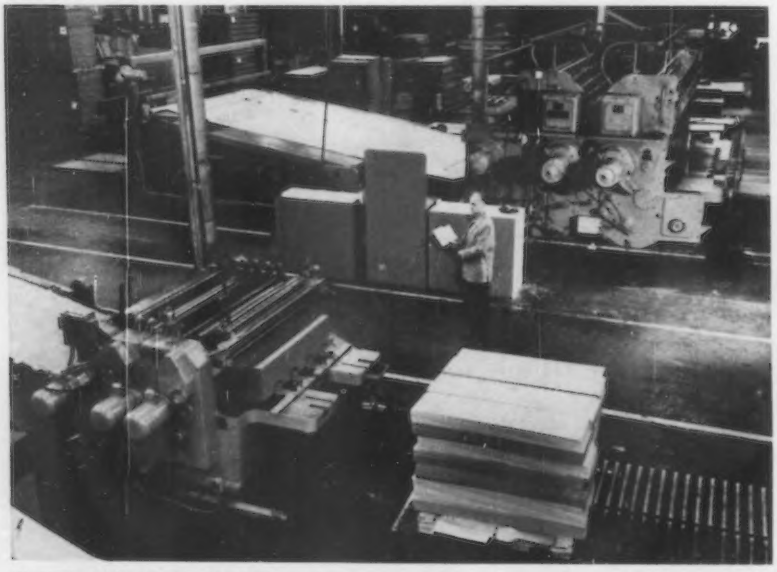
Irving S. Duren, III, has joined the New York sales staff of Keyes Fibre Co., Waterville, Me. He will assist other Keyes representatives in the Metropolitan New York area with sales of plates, dishes and prepackaging trays.

Mr. Duren graduated from Burdett College in Boston, and started on the Keyes field sales staff in that area in 1959.

O-I Names Sales Manager At Salisbury Box Plant

Deward B. Brittain, has been named sales manager of the Owens-Illinois Paper Products Division's Salisbury, N. C., plant.

In his new position Mr. Brittain will be in charge of sales of corrugated boxes in South Carolina, North Carolina, Virginia and parts of Georgia and Tennessee. For the last eight years he has been a salesman for the Salisbury plant in eastern South Carolina.



"MUTT AND JEFF" PRESSES, which rank among the largest and the smallest ever built for the corrugated paperbox industry, installed side by side in the Los Angeles plant of Container Corp. of America. Both are of Hooper-Swift design, made by the Metal Products Division of Koppers Co., Inc. The large press is capable of running sheets 80 by 180 inches at the rate of 120 sheets a minute and, with skip feed, can run sheets 100 by 180 inches. The small press is capable of running sheets 24 by 66 inches at a rate of 350 sheets per minute. Both presses are two-color.

Allen to Manage Georgia-Pacific Plant

Georgia-Pacific Paper Co.'s Container Division has announced the appointment of Stanton Allen as general manager for its Lacey, Wash., corrugated box plant. The $1.5 million installation, now under construction, is set for a March opening.

Mr. Allen comes to Georgia-Pacific with a background in the paper products industry including general sales, industrial engineering and top level administration. He also has served as a management consultant in general box plant operations. His previous business affiliations include Downing Box Co., Container Corp. of America and most recently Fibreboard Paper Products Corp.

Oberlin Joins H&D As Regional Engineer

Appointment of Richard J. Oberlin as regional engineer for the Hinde & Dauch Division, West Virginia Pulp and Paper Co., has been announced.

As regional engineer, Mr. Oberlin will be responsible for engineering matters pertaining to the buildings and equipment of Sandusky region plants. A mechanical engineering graduate of the University of Minnesota, he has spent 11 years in various engineering capacities with a large industrial concern in Detroit. He will be headquartered in Sandusky.

Consolidated Paper Box Completes Its Sellout

Consolidated Paper Box Co. of Richmond, Va., has sold its business to Pohlig Bros., Inc., also of Richmond and ceased operations.

Consolidated, a 52-year-old firm, had sold two divisions in the past two years. The third and last—the set-up box department—was sold to Pohlig.

Box Company Plans Catawba, N. C., Plant

The Housatonic Corrugated Box Co., Inc., of Stratford, Conn., will open a new plant near Newton in Catawba County, involving an investment of more than $1 million.

The plant, to manufacture corrugated shipping containers, will represent an expansion of the firm's operations. The company said it plans to continue operating its plant at Stratford.

New Carton Plant Announced for Kalamazoo

William Race, a former board chairman and president of Sutherland Paper Co., has announced formation of a corporation which will operate a packaging plant in the metropolitan Kalamazoo area.

Raco Packing Corp. will be "small to start," Mr. Race said, and will begin by specializing in certain types of small cartons.

The firm hopes to build a plant with about 15,000 square feet and be in operation by early summer. Although much of its machinery has already been obtained, no final decision has been made on the plant's exact location or details of its structure.

Mr. Race has been named president and treasurer of the firm which has been incorporated with 25,000 shares of capital stock with a par value of $10 each.

Other officers are Robert Confer, vice president, and attorney Garrett J. Troff, secretary. Incorporators besides the officers include Mrs. Race, John C. Klosterman and Benjamin A. Riley, Houston, Tex.

A native of England, Mr. Race was an officer of Sutherland Paper Co. from 1936 to 1959, serving as president from 1947 to 1958, as a board chairman from 1958 to August 1959 when he resigned.

Interstate, United Board Merger Talks Off Again

Merger talks between United Board & Carton Corp. and Interstate Container Corp. have been discontinued.

This is the second time merger talks between the two companies have been halted in the past year. The first was last June when the New Jersey Supreme Court blocked the acquisition of Interstate Container by United Board, claiming it was a merger and thus required two-thirds vote of stockholders for approval. The two companies resumed merger talks last fall. No reason was given for the latest breakdown of negotiations.

Mulhern Succeeds Johnson As Bemis Traffic Manager

Andrew J. Mulhern has succeeded Erik A. Johnson as general traffic manager of Bemis Brothers Bag Co., it was announced by H. V. Howes, director of sales at the firm's main office in St. Louis, Mo.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending January 21, 1961, at 88.0 per cent, compared with 90.4 per cent, revised, for the preceding week. The ratio was 96.9 per cent for the corresponding week a year ago. The capacity base was raised 3½ per cent as of January 1, 1961, over that used in the last six months of 1960.

The National Paperboard Association reported the paperboard production ratio for the week ending January 21, 1961, at 90 per cent, compared with 92 per cent for the preceding week and 95 per cent for the corresponding week a year ago. *(Detailed Statistics on page 54)*

O-I Promotes Two In Paper Products Div.

Two promotions in the Texas corrugated box plants of the Paper Products Division of Owens-Illinois have been announced.

Russell D. Hobbs, assistant sales manager at the division's Dallas plant, has been named sales manager of the Mercedes, Tex., plant, with responsibility for sales in southern Texas.

Robert E. Graves will become assistant Dallas sales manager.

Mr. Hobbs has served at the Dallas plant for 11 years, successively as office manager, sales service supervisor and assistant sales manager. He joined Owens-Illinois in Jacksonville, Fla., in 1949.

Mr. Graves has been a salesman in the Dallas area for O-I for eight years and for two years previously was a paper salesman for Texas Paper Co. in that city.

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men, money or machinery?

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Section

OBITUARIES

Herbert A. Barnes, 56, office manager of the KVP Sutherland Paper Co.'s Sutherland Division, Kalamazoo, Mich., died of a heart attack while driving to work on January 18.

Vincent R. Hann, 61, Bronxville, N. Y., president and treasurer of the Merrimac Paper Co., Inc., with mills in Lawrence, Mass., died January 25 in the Memorial Center for Cancer and Allied Diseases, New York.

Mr. Hann, a graduate of Pace College, had been associated with Merrimac for more than 30 years.

Jack Alvey Knight, 43, of Jacksonville, Fla., was killed January 21 when his small foreign car apparently veered out of control and slammed into another automobile. Mr. Knight became president in 1958 of Knight Bros. Paper Co., which his father founded in 1922. He also was head of three affiliated firms—Protective Packaging of Miami, Inc.; Knight Paper Co., Mobile, Ala.; and Caribbean Supply, Ltd., Nassau.

H. A. Helder, 74, retired vice president and Carolina division manager of Champion Paper and Fiber Co., died January 22 in a Waynesville hospital after an extended illness.

Mr. Helder was a native of Dallastown, Pa. He received his B. S. degree in chemistry from Pennsylvania College at Gettysburg in 1908 and joined the Champion firm in Canton, N. C., the same year.

Mr. Helder was named vice president and Carolina division manager of the company, in 1952. He retired in 1958 after 50 years with the company.

M. L. Madden, 95, former president and chairman of the board of the Hollingsworth & Whitney Paper Manufacturers Co., of Gardiner, Me., before its merger in 1954 with the Scott Paper Co., died at his home in Newton, Mass., on January 16 after a brief illness. Mr. Madden retired at the time of the merger.

Frank S. McDonnell, 72, retired superintendent of Tileston & Hollingsworth Co., paper manufacturers, died January 22 at his home in Canton, Mass. following a long illness. A native of Holyoke, he had resided in Canton 25 years.

Formex Performance; New Surface Sizing Method; Calender Operation Analysis...

. . . these were some of the highlights of the 47th annual meeting of the Technical Section CPPA held in Montreal the last week of January. As usual the program was notable for the coverage of all types of pulping, paper and board manufacturing, engineering and technical problems.

A call for vigorous efforts within Canada's largest industry for a more complete and efficient use of raw materials and manpower resources in order to meet the challenges of the day was made by W. T. Bennett, outgoing chairman of the Technical Section, Canadian Pulp and Paper Ass'n., in his report at the annual meeting.

"We must work more effectively to get our costs of manufacture down by close control of the consumption of materials and the use of labor," he said. "Many of you have more opportunity to help in the struggle to be competitive by being ever alert to the need for technological improvements, and, having recognized that an opportunity exists, to use initiative in working out an economic solution."

Mr. Bennett, who is vice president, engineering, Canadian International Paper Co., said that opportunities for improvement exist in every segment of the industry.

For instance, there is still terrific use of labor between the standing trees in the forest and the pulpwood delivered to our mills," he said. "Mechanical equipment is being developed not only capable of felling trees, but also of processing them into barked and scaled pulpwood. Improved pulpwood handling is under intensive study to get pulpwood from the stump to the nearest road and then to truck it economically by truck and trailer to stream or mill."

The outgoing chairman discussed the changing pattern of international competition which now confronts Canadian producers.

"A few years ago the only real competition to Canadian pulp and paper products came from the Scandinavian countries, but that really didn't affect our major market for newsprint in the United States," he said.

E. L. Neal, new chairman of the Technical Section for 1961

"We are still facing Scandinavian competition, particularly in export markets where they have a considerable advantage in freight costs. It is evident that this competition will continue, since in the face of world overcapacity, Sweden expects during the four years 1961-1964 to increase its pulp production by around 1.5 million tons or 27 per cent. About 950,000 tons will be market pulp while the remaining 550,000 tons will be used for integrated manufacture of paper and paperboard.

"Similarly, by the end of 1962, Finland expects to increase its wood pulp capacity by 39 per cent and its paper and board capacity by 41 per cent.

"During this same period Russia intends to give high priority to expansion in all phases of its pulp and paper industry. During his visit here last May, Mr. Orlov assured us that demand would continue to exceed supply in the U.S.S.R. Nevertheless, it would be naive to assume that Russia would not enter world markets to satisfy her needs for either material or political advantage."

Mr. Bennett said that in addition to Scandinavian competition in world markets, Canada is now running into increasing competition from the U.S. itself, particularly from mills in the Southern States.

"In the five years from 1955 through 1959, Canadian production of newsprint went up by a little more than 400,000 tons, while U.S. newsprint production increased by more than 750,000 tons.

"Canada is faced with very severe competition within the U.S. due to its own production of all grades of pulp. While successful research has continued the use of dissolving pulps for the manufacture of tire cords, competition with nylon tire cords is intense and will continue."

New TS Chairman

E. L. Neal, president and general manager of Gaspesia Sulphite Co., has been elected 1961 chairman of the Technical Section, CPPA.

Mr. Neal, of Chandler, Que., succeeds W. T. Bennett, vice president, engineering, Canadian International Paper Co.

Elected vice chairman of the Section for 1961 was George C. Brown, vice president and general manager of Price Brothers & Co.

Elected to the Technical Section Council for three-year terms were: E. T. Buchanan, manager, Lauren-

W. T. Bennett,
outgoing T. S. chairman

George C. Brown,
newly elected vice chairman

Douglas Jones,
executive secretary of the Section

tide Division, Consolidated Paper Corp.; Dr. R. M. Dorland, director of research, Abitibi Power & Paper Co., and A. D. Hamilton, production manager, Quebec North Shore Paper Co.

Award Winners

U Mai Aung, a 28-year old cellulose research scientist from Burma, is among several winners of annual awards presented by the Technical Section. Names of the winners were announced at the annual meeting.

Mr. Aung, an officer in the Cellulose Research Department of the Union of Burma Applied Research Institute, Rangoon, was named 1960 winner of the C. Howard Smith Memorial Medal.

Presented annually for the best paper submitted by a junior or student member of the Technical Section, the award has never before been won by an overseas member for work done outside Canada. Mr. Aung's paper was entitled "Bleachable Pulp from Burmese Bamboo by the Chlorination Process."

The F. G. Robinson Technical Section Service Award for 1960 was won by J. A. Warburton, Canadian International Paper Co., Temiskaming, Que.

Given in recognition of the greatest contribution made to the Technical Section and to the industry during the year by a member, this was presented to Mr. Warburton for his service as chairman of the section's Steam and Steam Power Committee, and also for his work with the National Industrial Fuel Efficiency Service Investigation.

The Weldon Medal for 1960, given for the best paper presented by a senior member of the Technical Section, was awarded to P. B. Wahlstrom, of Karlstads Mekaniska Werkstad, Karlstad, Sweden. His paper, entitled "A Long Term Study of Water Removal and Moisture Distribution on a Newsprint Machine Press Section," was based largely on work conducted by him when he was associated with Anglo Paper Products, Ltd., Quebec City.

Three winners were announced in the 1960 Gadget Competition. They are: L. Gaudet, Howard Smith Paper Mills, Ltd., Cornwall, Ont.; winner of the $100 first prize; D. H. McKay, Penobscot Chemical Fibre Co., Great Works, Me., awarded the $75 second prize; and H. Miller, Alliance Paper Mills, Ltd., Merriton, Ont., winner of the $50 third prize.

Report on Performance of Formex Fabrics

R. MacPherson,
Paper Mill Supt.,
Consolidated Paper Corp.

Formex fabrics have been used continuously to replace bronze wires on an 800 foot per minute newsprint machine since their use on a production basis was commenced March 22, 1960. Fourdrinier modifications required by the use of the fabrics and the operating characteristics experienced are described.

Sheet quality and machine efficiency have been as good or better than when metallic wires were used.

Better than twice the wire life has been experienced on some fabrics but a longer life is indicated. Full evaluation is not yet possible because there has been insufficient time to realize the full benefits of the improvements made since March.

Fourdrinier Alterations

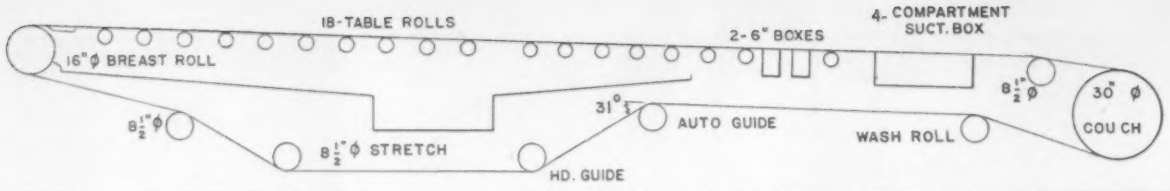
In order to successfully operate Formex fabrics as they exist today, certain modifications are required to the fourdrinier. Since the fabrics are slightly elastic, some provision must be made to take up the stretch to prevent wrinkling and keep the fabric spread out.

At Laurentide, the following changes were found to be necessary:

1. Installation of three spreader rolls on the fabric return; one after the couch, one after the stretch, and one before the breast roll.
2. A stretch capable of taking up a maximum of a three per cent increase in fabric length. This means about two feet for 68 feet fabric length on this machine.
3. Additional return rolls to provide the required wrap on the spreader rolls.
4. Well-fitted doctors on all return rolls.
5. Use of a water jet actuated guide.
6. Installation of a slotted cover on the first wet flat box.
7. Extension of the wire saveall trays to the flat boxes.

Fabric Installation

At first, the fabrics were draped and installed in the same manner as a conventional wire. However, the location and method of suspension of the additional return rolls was such that about five hours was required for a fabric change compared with three hours for a normal wire change on this machine. Now, the fabrics



FOURDRINIER AS ARRANGED for conventional wires (No. 2 machine of Consolidated Paper Corp. Laurentide Div.)

are being roped for installation and are changed as quickly as a conventional wire.

Guiding

When the first experimental fabric was tried, the machine was equipped with a mechanical guide and with this, guiding was a problem. The force required to move the guide pan was too great and the edge of the fabric would roll over when it touched the pan and correction was too slow, an Askania wire guide was installed. With this water jet actuated guide, correction is almost instantaneous and there is a slight overriding feature inherent in the guide which gives a desirable oscillating effect to the fabric. Another advantage of this type is that it does not fray or wear the edge of the fabric as the pan type guides might do.

Drainage

Initial tests had indicated that the water had a greater tendency to cling to the underside of a fabric than to a wire. Therefore, skimming deflectors were installed after all the table rolls for the full length of the fourdrinier.

Actually very little difference has been found in the behavior of fabric and wire at the slow speed operated and all these deflectors are not considered necessary. At higher speeds, however, the use and design of deflectors or skimmers may be very important.

Wrinkling and Narrowing

Being slightly elastic, the fabric has a tendency to narrow when subjected to maximum tension, and to widen when the tension is relaxed after the couch. In widening, it tends to wrinkle, and for this reason a spreader roll is located immediately after the couch to help spread the fabric.

The Formex Co. has followed the narrowing and wrinkling problem in their manufacturing operations. A recent fabric of different design displayed much less tendency to wrinkle.

Flat Box Operation

The perforated cover on the first wet flat box had to be replaced by one slotted in the cross machine direction to prevent streaking of the sheet. Being pliable, the fabric is pulled into the cover holes by the vacuum, and if the sheet is very wet when this occurs, streakiness results. Since the fabric does depress into the holes, grooves are worn in the covers in line with each hole.

The coefficient of friction between fabric and Type 304 stainless steel is approximately two-thirds that of fabric on end-of-grain maple, while wear on the fabric is approximately one half and wear of the stainless steel was approximately one fortieth that of the wooden covers. This indicates that the use of stainless steel as suction box cover material could not only minimize the tension problem, but could also greatly increase fabric life through reduced wear. A single suction box was fitted with a stainless cover in August and after some experimentation it is now performing satisfactorily. Therefore, stainless steel covers are being made up for the rest of the suction boxes on this machine. In making the stainless covers, it was learned that in order to get equivalent water removal to that obtained on end of grain maple covers, the holes could not be countersunk. It appears that the edge of the holes need to be square and smoothly sharp to "doctor" the water from the underside of the fabric.

In connection with the benefits to be derived from a reduction in the drag load and wear at the flat boxes, it is interesting to conjecture what results might be obtained if fabrics were operated in conjunction with rotary suction units in place of flat boxes.

Couch Conditions

The draw at the couch appears to be steadier and less troublesome than when a wire was being used. The reasons are believed to be:

1. That less force is required to pull the web from a fabric than from a wire.

2. The web is at least two per cent dryer at the couch (i.e. 22 per cent vs 20 per cent o.d.) when made on a fabric.

The sheet made on the fabric is comparable in all respects to that made on the conventional wire.

Fabric Life

To date, eight fabrics have been used and none of them has been worn out. Removal has been necessitated by either damage or narrowing of the fabric. The best life attained to date has been 48 days, which is 2.1 times the normal wire life of 23 days on this machine. The poorest life, was two days, the result of damage.

Damage

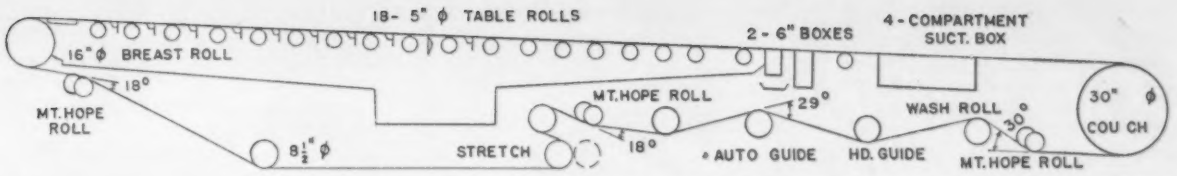
Although fabrics are not prone to damage in the form of edge cracks, pimples, jams, ridges, etc., they are subject to puncture by hard objects, and this type of damage can lead to immediate failure. Four of the fabrics used to date have torn off the machine as the result of damage. Two others were cut off with irreparable tears in the machine direction. Experience has shown that if the puncture is small or in the body, the fabric will not burst, and the hole can be repaired successfully.

Several fabrics have been operated in other mills when less than 20 per cent of the original cross direction tensile remained. This includes one operated at 1200 feet per minute on a kraft machine at the Wayagamack Division. Even those which had operated over 40 days on No. 2 P.M. had 55 per cent or more of their original cross direction tensile remaining, indicating they were not worn out.

Conclusions

A sheet of newsprint equivalent in quality to the standard product formed on metallic wires is being made on Formex fabrics. Paper machine efficiency is also comparable.

The Formex fabrics are being marketed at a price which is about double that of a bronze wire. Therefore, at this higher initial cost, they must outperform a wire by two and one half times in order to make their use



FOURDRINIER AS MODIFIED for Formex wires (Same machine as shown on the opposite page).

economical. Due to the developmental difficulties as outlined above, this kind of performance has not yet been achieved, but it is definitely indicated. The following are the indicators:

1. Despite the developmental difficulties, life in the order of twice normal wire life has been attained on four fabrics, none of which was worn out.

2. The incidence of damage should revert to normal since modifications to the machine have been more or less completed.

3. Research work indicates that the use of stainless steel suction box covers will reduce fabric wear by one half and prolong its life.

4. The use of the more recent fabrics supplied has shown that the Formex Co. are succeeding in overcoming the narrowing and wrinkling problem.

The experience gained with fabrics in this mill has been on a slow speed machine. All of the findings will not necessarily apply to the use of fabrics on higher speed machines and further developmental work will be required for the successful applications of fabrics to these. Table roll kick up will likely be a problem, but this might be overcome by skimmers.

Research to Assist Application Of Formex Fabrics

J. D. Boadway,
Research and Development Department,
Consolidated Paper Corp.

This paper deals with research which was carried out to assist in the application of Formex fabrics to news machines.

It was found that a Formex fabric must be woven with smaller holes and less over-all open area than a bronze wire to give equivalent drainage. This is believed due to an ability of the Formex fabric to carry water, drained through the stock mat, to the holes.

The tension found necessary to strip a news web from a Formex fabric is lower than that for a bronze wire. Also the web removed after couching is drier. These two factors may give better paper machine performance.

The best material found for flatboxes to be used in conjunction with Formex fabrics appears to be stainless steel; it gives lower frictional drag as well as reduced wear.

Theory and Operation of High Speed Steel Roll Calender Stock

B. I. Howe and J. E. Lambert,
Quebec North Shore Paper Co.

The importance of the calender stack in the production of quality newsprint is becoming widely recognized, and as the printing demands of the consumers increase, this area of the modern newsprint machine operation will become of critical importance. The improvements in steel roll calender stacks have been largely mechanical; for example, improved bearing and roll design, surface finish and nip pressure control. While these have been significant contributions to the high speed operation of this section of the machine, the fundamentals of calendering remained largely unknown, making the basic design of steel roll stacks empirical.

The mechanism of calendering is indicated as a case of rolling friction combining the compressive and shear stresses due to roll weight and rotation over the visco-elastic paper web. The theory of rolling friction for cylinders over visco-elastic materials is examined although proof of its validity will only be forthcoming with a further basic understanding of the rheological behavior of paper under the stresses existing in the calender nip. Roll to roll slip in steel roll stacks is shown to be non-existent; eliminating this as one possible factor in the mechanism of newsprint quality improvement. Hysterisis losses and the belt effect are the other major sources of power consumption in the stack; bearing losses being a minor factor.

The effect of the stack on paper quality is two dimensional, length and width; the change in printability through successive nips in the stack is shown to be linear as is the change in surface smoothness; the other quality factors such as caliper, wire mark and softness are mainly affected by the top two nips in the stack with the subsequent nips having very little effect. The importance of smoothness to printability is confirmed by previous work.

The localized nip pressures are correlated with caliper and smoothness and the large variations in both these which exist in the finished sheet are shown to be the effect of the nip pressures generated across the face of the calender stack. Two stacks were studied and the independent correlations obtained show excellent agreement and indicate the combined effect of roll temperature, total nip pressure and fibre quality on the variations in finished paper quality from two mills.

Further information on the effect of calender barring on newsprint caliper and surface finish is examined as are some of the possible causes of stack barring.

The calender cooling system is studied as a control system for localized nip pressures and the use of auxiliary heating and cooling devices wide spread in the industry indicates that thermal control is not possible

for existing units. The temperature profiles of the rolls are an excellent characterization of the efficiency of the calender cooling system as well as the caliper distribution in the sheet entering the stack and their use as a measurement of the overall stack operation will be important for improved control of this section of the machine.

New Technique for Surface Sizing

B. A. Beardwood and E. P. Czerwin,
E. I. duPont de Nemours

Widespread application of polyvinyl alcohol as a surface size for paper and paperboard has been limited in the past because solutions of polyvinyl alcohol penetrate too deeply into paper and paperboard. A new surface sizing technique has been developed which uses a pretreatment of borax solution to gel polyvinyl alcohol sizes on the surface of the sheet, thus preventing excessive penetration of the size.

The two-stage borax-polyvinyl alcohol sizing technique has been evaluated on several types of paper and paperboard in laboratory studies and in mill trials. On all substrates the borax-polyvinyl alcohol size demonstrated excellent resistance to mineral oil penetration and improved resistance to turpentine penetration. In the laboratory, the borax-polyvinyl alcohol size was compared on an equal-cost basis to other sizes including straight polyvinyl alcohol, starch, sodium carboxymethylcellulose, and sodium alginate.

Unbleached kraft linerboard was used as the substrate. The sized linerboard was tested for oil absorption, IGT printability, water absorption, and bursting strength. The borax-polyvinyl alcohol size gave superior oil holdout and was comparable to the other sizes in the other properties tested.

Mixed Base Sulphite Pulping

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Columbia Cellulose Co.,
Prince Rupert, B. C.

Used bleach plant caustic extraction liquor available from commercial treatment of dissolving grade sulphite pulp was augmented with ammonia and used as base for sulphite cooking acid for pulping a Western Canadian coniferous wood mixture. The raw pulp K. No., alphacellulose content and screen rejects of these mixed-base pulps were equivalent to those of ammonium- and sodium-base pulps and superior to direct steamed calcium-base raw stock.

Difference in cooking time required to 200—300 cp. raw pulp viscosity between ammonia and used bleach plant caustic base acids were greater than those between ammonia and pure sodium-base acids. It was found that the hemicelluloses contained in the bleach plant waste liquors bind "extra" sodium and thereby affect cooking time to a given raw pulp viscosity. Cooking time was extended and raw pulp properties were improved progressively as the amount of hemicellulose in the cooking acid rose. The mechanism involved in better delignification due to the presence of hemicelluloses is not completely understood.

Digester Stresses: Their Causes and Effects

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Assistant Division Engineer,
Consolidated Paper Corp., Port Alfred

This paper compares circumstances of recorded explosions in lined sulphite digesters with conditions existing at the time maximum stress measurements were made on a lined sulphite digester at the Port Alfred Division of Consolidated Paper Corp., Ltd.

All explosions as well as maximum stress measurements recorded herein are associated with operation; (1) during winter months; (2) following long shut-downs where digesters were allowed to cool off; and (3) when cooking too rapidly after such a shut-down.

Methods of calculation are shown.

Under the above extreme conditions the abnormally high measured stress of 19,400 p.s.i. was well above design limits but still below the measured elastic limit of the particular digester steel tested. The A.S.M.E. code for unfired pressure vessels is inadequate for digester design and should be amended because no allowance is specified for stress caused by lining expansion.

Digesters are possibly still in use with steel having an elastic limit below the stress of 19,400 p.s.i. measured for Port Alfred digesters. These findings however do not necessarily apply elsewhere in all cases due to different digester diameter, shell and lining thickness, etc.

Recommendations are made for operating practices to reduce severity of shell stresses.

Alkaline Pulping of Small Wood Subdivisions

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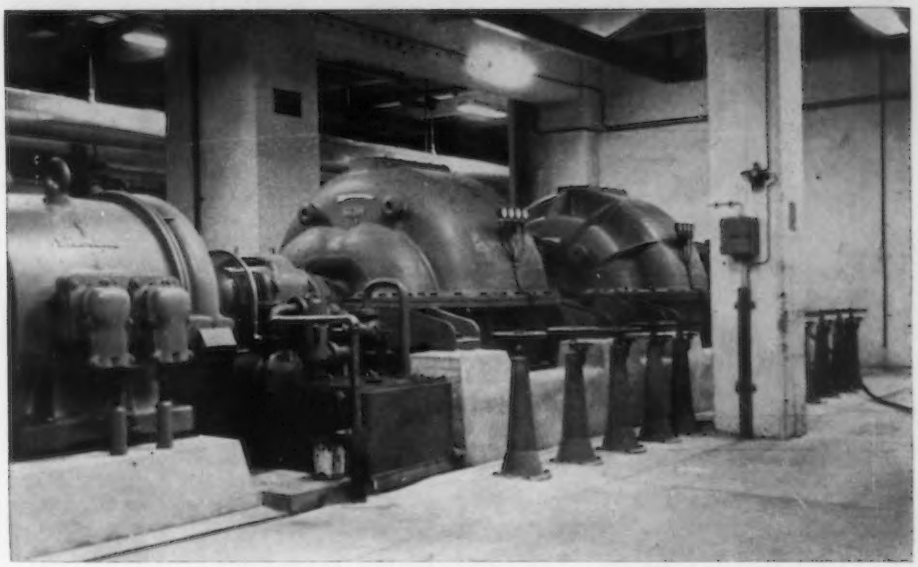
Pulp and Paper Research Institute of Canada

Alkaline cooking of wood (poplar and spruce), mechanically defibrated in the presence of the liquor, has been studied in the liquid phase and also in the vapor phase after removal of the excess liquor. Solution of portions of the wood in the alkaline liquors was found to occur even below 100°C, factors being alkali concentration. temperature and time of reaction. Drop of pulp yield and delignification during cooking were studied and distinct mechanisms were found. Pulps from defibrated wood exhibited a higher residual lignin content and a lower carbohydrate yield than those from nondefibrated wood; these differences, however, were found to decrease as cooking time increased. In the whole range of alkali concentrations investigated, pulp viscosity plotted versus carbohydrate yield exhibited a single linear relationship irrespective of the defibration of the wood. However, wood defibration resulted in reduction of pulp strength properties. Soaking of wood wafers in the alkaline liquor before cooking was found to slow down delignification and to result in lower pulp yields and higher values of the residual pulp lignin.



Summa vacuum system with two parallel operating four-phase Sulzer suction blowers. Photo by P. Salantera

Sulzer Vacuum Installation Proves Highly Successful on Paper Machine

Pertti Hahl, technical manager of the Summa newsprint mill of Enso-Gutzeit Osakeyhtio at Summa, Finland, discusses here in an article specially prepared for Paper Trade Journal, the experiences they have had with two different vacuum systems for their paper machines, Nash pumps, and Sulzer blowers.

Installation of radically different methods of producing vacuum for two very large, nearly identical side-by-side newsprint machines in Finland permitted some interesting comparisons. The Summa newsprint mill of Enso-Gutzeit Oy has two Beloit paper machines, both with a wire width of 283 inches. Number one was put into operation in 1955 and number two in 1958. The press section of the former is of straight-through type. Number two has a Twinver press.

Number One's Installation

The vacuum system on number one machine is as follows:

There are 10 Nash vacuum pumps:

Five are H-12 A—177 r.p.m. 5200 cu.ft./min.—20 inch Hg vacuum

Four are L-11 A—177 r.p.m. 5200 cu.ft./min.—10 inch Hg vacuum

One is K-9 — 177 r.p.m. 2400 cu.ft./min.—8-10 inch Hg vacuum.

With the speed of number one at present about 2000 f.p.m. these pumps are distributed between the different suction points as follows (see Figure 1):

Wire suction boxes—1 unit Nash K-9; Couch 1st-suction box—1 unit Nash L-11 A; Couch 2nd-suction box —1½ units Nash H-12 A; Pick-up—1 unit Nash L-11 A; Wringer roll—1 unit Nash H-12 A; Felt suction box—1 unit Nash L-11 A; 1st press —2½ units Nash H-12 A; 2nd press and 3rd press—1 unit Nash L-11 A.

The piping is arranged to permit re-grouping in the system with the different speed ranges.

Number Two's Installation

The vacuum system of number two machine consists of two Sulzer vacuum pumps of the same size and with the following characteristics.

Type RC-4A-4N-80 6328 r.p.m. effect about 31,000 cu.ft./min. vacuum 8-20-inch Hg, motor 1,250 kw.—1,480 r.p.m.

The Sulzer units are two stage centrifugal exhausters. The air is drawn into the unit and compressed by the dynamic action of impellers or vanes and passed on to the next stage. They are more correctly described as blowers or exhausters rather than pumps. Hot air under considerable pressure is exhausted from the last stage and finds considerable use in paper mill installations.

The Nash pumps are distributed stepwise between the different points

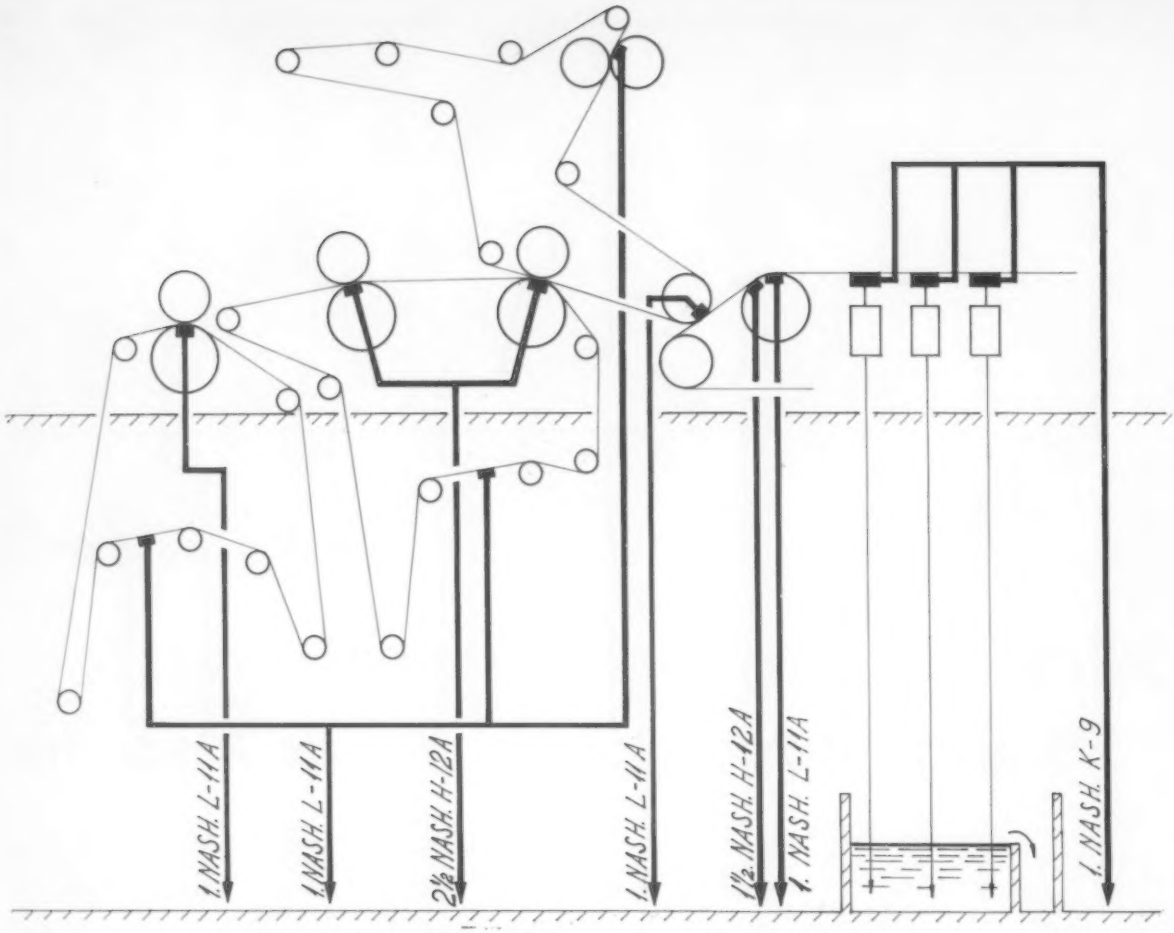


FIGURE 1. PIPING ARRANGEMENT on paper machine using Nash pumps.

of the paper machine (see Figure 2) for a machine speed of about 2200 f.p.m. The amount of vacuum of the different steps and volumes of air to be handled served as the basis of the distribution (step I 20 inch Hg, II-III 10-15 inch Hg and IV 8-10 inch Hg).

Figure 3 shows the piping scheme for the Sulzers. A feature of this system is the water separators used to prevent water from entering the Sulzer units and a level regulated suction pit into which the water is led. Mostly automatic controls regulate stepwise the suction resistance and prevent too great amounts of air from feeding into the pump. The suction pit can lead to considerable height differences. The height difference between the water separators and the suction pit is nearly 11 m. at Summa, as recommended by the manufacturer.

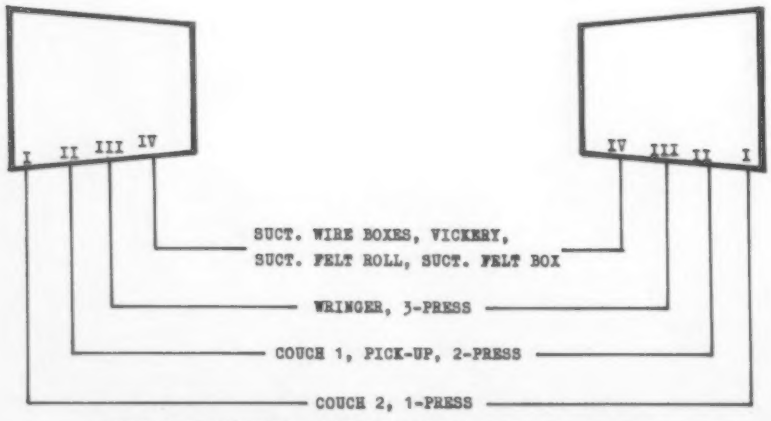


FIGURE 2. STEPWISE DISTRIBUTION of Nash vacuum pumps.

Hot Air Use

The hot air from the Sulzer unit is led along an insulated pipe to the hot-air duct under both the paper machines, from where it is blown under its own pressure onto the dryer felts. The air temperature from the Sulzers is about 130° C. and its dew point at the paper machines is 45°. The air can be dispersed as required onto the different felts by regulating the size of the air outlets.

The high temperature of the air makes it unnecessary in either machine to use steam to heat the air for the felts even in the coldest weather (and this is in Finland!) If all the Sulzer air cannot be used for the paper machines, the excess is blown onto heat exchangers where it is utilized to heat air or water.

"A survey of a group of American paper company officials who toured a number of mills in Finland revealed that one of the most interesting things they saw there was the Sulzer vacuum systems. The editors of Paper Trade Journal, therefore, arranged for this article, as well as others to follow on other points they found most interesting in Finland."

According to tests at the mill, the total steam consumption of number two machine is about five per cent smaller when Sulzer air is used. Economic utilization of this air is being studied further.

Power Consumption

The power consumption of Sulzer units, in kw.-hr./ton, depends entirely on the choice of pump size. The choice is easy if a regular grade and weight of paper is run at constant speed. At Summa, the product being newsprint the first requirement is met. The speed of the paper machines, on the other hand, here as elsewhere, depend to a fairly great extent on the market.

The size of the Sulzer units for number two paper machine were selected so that when the speed of the machine is under 1,700 f.p.m. one unit is sufficient. Both Sulzer units are in operation at speeds over 1,700 f.p.m.

The Nash pumps of number one paper-machine, of course, are more easily stepped in regard to number and grouping when the machine speed changes.

This means in practice that for speeds under 1,700 f.p.m. the power consumption per kw.-hr./ton of the one Sulzer pump is distinctly more economical than that of the corresponding Nash pumps. For speeds of 1,700-2,000 f.p.m. power consumption is smaller with the corresponding Nash suction pumps. Today, when the speeds of the machines are 2,000 f.p.m. and 2,200 f.p.m., the power consumption per kw.-hr./ton of the Sulzer pumps on number two machine at the higher speed is smaller than that of the corresponding Nash pumps.

Other Factors

As regards space, Sulzer and Nash plants of comparable vacuum capacity differ decisively. The Sulzer plant occupies about one third of the floor space required by Nash pumps. In depth, on the other hand, the space requirement of the Sulzer system is greater.

In use the pumps have shown no difference of reliability. The vacuum from the Sulzer system, thanks to automatic control, is more constant than is the case with Nash pumps. Both require very few repairs. Repairs to one Nash suction pump reduce the capacity of the whole system considerably less than repair work on a Sulzer unit. With the latter, half the vacuum capacity is lost during repairs.

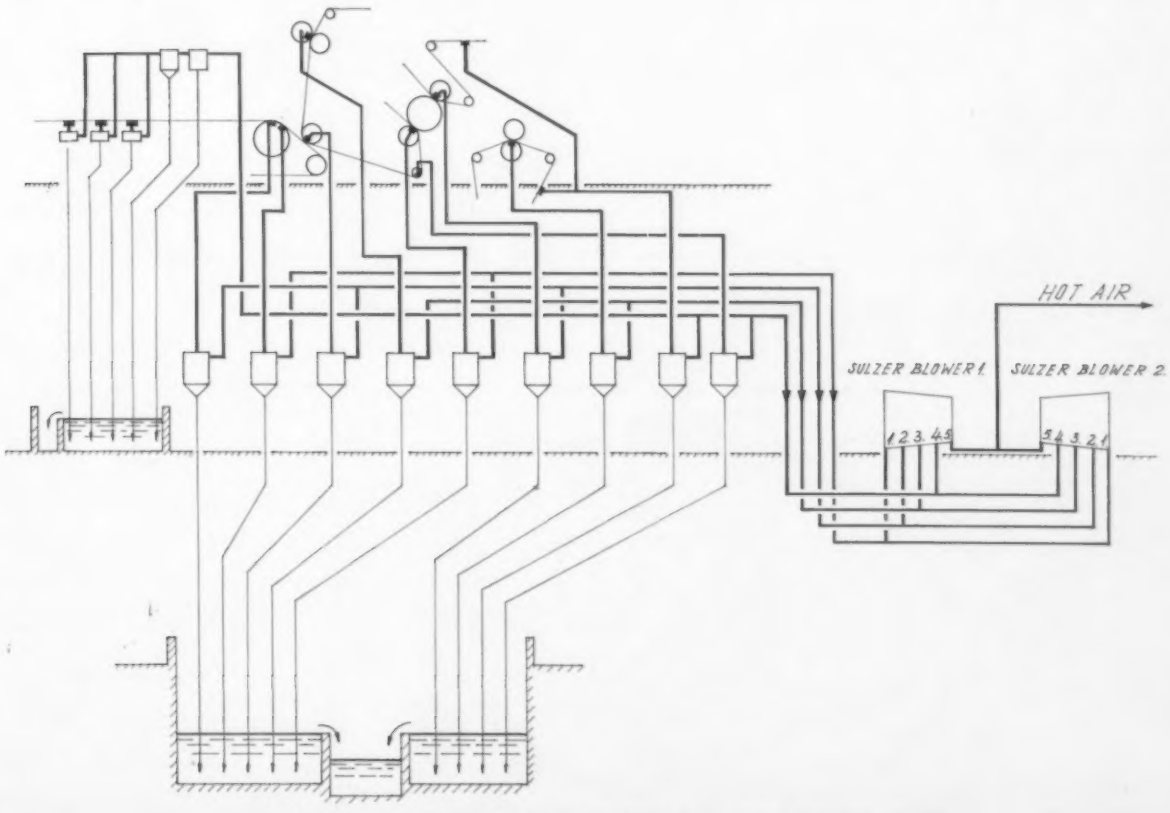


FIGURE 3. PIPING ARRANGEMENT on machine equipped with Sulzer blowers.

How The South Is Utilizing Three Potential Sources of Chips

- **From Sawmill Kerf Saws**
- **From Sawmill Chip Blankers**
- **From Hardwood Veneer Residues**

One of the newest and very significant developments in the utilization of wood residues has been the development of a log saw, that instead of producing sawdust, produces a chip of pulpable quality. At least one kraft mill in the South, Buckeye Cellulose Corp., at Foley, Fla., are using the saw kerf chips, as they are referred to, on a regular basis. A second company is known to be experimenting with them, while three or four others probably are investigating its possibilities.

The pulping of sawdust itself is not unique; for instance, Potlatch Forest Industries, of Lewiston, Idaho, have been pulping this sawmill residue material in continuous digesters (sawdust tends to pack in a stationary digester) for some time. PAPER TRADE JOURNAL has carried reports on this phase of Potlatch's operation in the December 14, 1959, and July 4, 1960, issues. The following report pertains to the production and use of saw kerf chips, and has been assembled from several sources.

The saw kerf chip produced commercially by the new type saw generally measures ¼-⅜ inch in length along fiber direction. Martin (3) conducted kraft cooks at the Forest Products Lab. to compare the pulping qualities of a commercially produced saw kerf chip and a laboratory-produced saw kerf chip with a standard kraft chip. His results are summarized in Table 1. Significant among his findings were:

- Screened pulp yields fell within a narrow range of 44-46 per cent; screening rejects ranged from 0.2 to 2.3 per cent.
- Permanganate numbers varied within the ranges normal for kraft pulp.
- Both burst and tearing strengths decreased as wood particles became smaller.
- Saw kerf pulp strengths appear high enough to permit its use alone or in mixture in many kraft papers.

The saw mill described by Holekamp produces between 350-400 residue chip units (one unit—5,000 lbs. green pine) per week. With each 1,000 bd. ft. of sawn lumber, the mill accumulates two units of chips. Saw kerf chips account for 0.7 of a unit; chips from topwood make up another 0.5 unit; and chips from slabs, edgings and trimmings comprise the remaining 0.8 unit. However, Brewer cites that all the sawmills using the new saw are averaging about 0.2 units of kerf chips per one M.b.f. of sawn lumber.

Six factors appear to influence the production of uniform kerf chip by

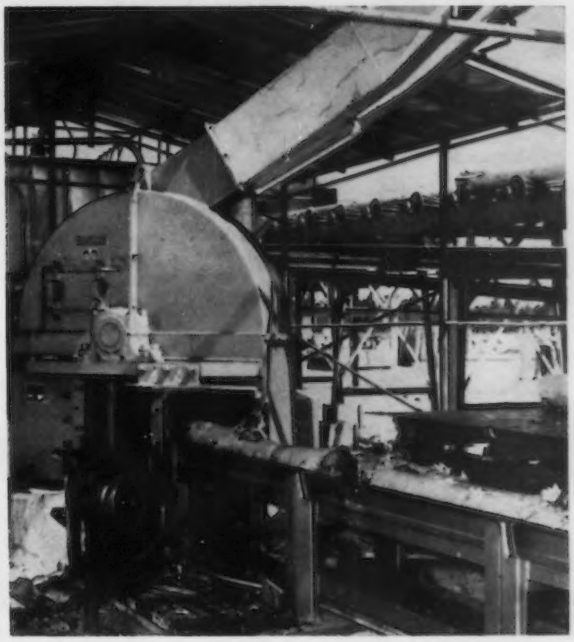
TABLE I: RESULTS OF THE KRAFT PULPING OF SAWMILL KERF CHIPS

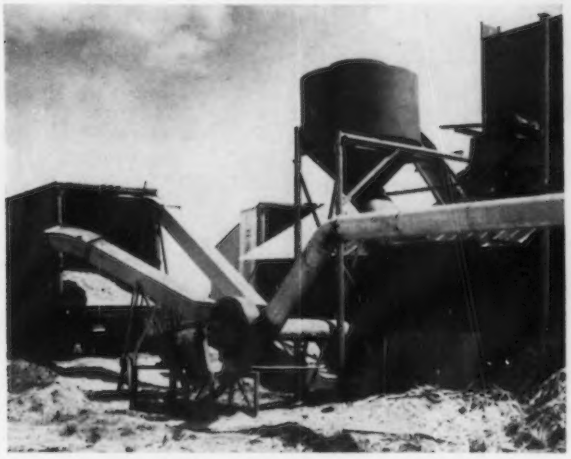
	Active Alkali %	Screened Yield %	Screenings %	$KMnO_4$ No.	Beating Time min.[5]	Burst Factor	Tear Factor	Fold M.I.T.	Breaking Length 1000 M.	Sheet Density g./cm
Commercial Saw Kerf Chip[1]	15.6	46.0	0.2	28.7	35/46	58/65	141/132	680/900	8.6/10.0	0.59/0.64
FPL Saw Kerf Chip[2]	15.6	45.2	0.7	27.6	30/42	65/70	158/131	600/880	8.8/10.1	0.57/0.83
Saw Kerf Chip Fines[3]	15.6	44.2	1.4	27.0	23/31	44/52	123/114	330/530	7.6/8.5	0.58/0.64
Standard Chips[4]	15.6	45.8	1.1	29.1	39/50	77/87	170/160	950/1040	10.1/11.1	0.58/0.63
Standard Chip + FPL Saw Kerf Chip (equal parts)	15.6	45.0	0.6	28.4	31/46	72/73	160/121	940/1180	9.7/9.7	0.60/0.65
Standard Chip + Saw Kerf Chip Fines (equal parts)	15.6	44.1	2.3	29.5	34/47	63/68	156/131	590/790	9.3/9.6	0.59/0.63
Commercial Saw Kerf Chip[1]	19.5	42.9	0.1	19.0	33/44	57/63	152/126	920/1000	9.2/9.9	0.62/0.66
FPL Saw Kerf Chip[2]	19.5	44.2	0.1	22.9	28/39	57/62	145/129	500/830	9.5/10.1	0.60/0.67
Standard Chip[4]	19.5	43.4	0.3	19.7	35/50	77/83	188/146	1030/1420	10.5/11.5	0.61/0.63

[1] Chips averaging ¼ inch long in fiber direction.
[2] Chips ¼ inch long retained on 3/16 inch mesh screen.
[3] Chips ¼ inch long or less and passed through 3/16 inch mesh screen.
[4] Chips averaging ⅝ inch in length and ⅛ inch in thickness.
[5] In this and the following columns, the first number represents the value of the pulp beaten to 450 C.s.f.; the second number is the value at 250 C.s.f.

Type of circular saw which produces saw kerf chips. Note the spacing of the inserted teeth.

Bolt ends and reject portions are fed into Hansel combination roundwood and slab chipper. Chips are blown to storage or trailer vans.





Pneumatic system for loading saw kerf chips and residue chips together into trailer vans.

the new saw (2), these being: ratio between diameter and thickness of cut; number of inserted teeth; the rim speed of the saw, which must be constant, the feed rate and the uniformity of feed rate or lag into the saw.

At present, saw kerf chips are manufactured only by inserted-tooth circular saws located throughout the sawmill operation. These are comprised of head saws (for primary log breakdown); the ganged saws (for cutting lumber to thickness); and the edger saws (for cutting lumber to width). Apparently no attempt has been made to produce saw kerf chips from band and sash gang saws.

Holekamp gives a good description of these special saws in commercial use. The headsaw is 60 inches in diameter with 18 special inserted teeth. A conventional head saw of similar size contains 54 to 60 teeth. Width of the saw's cut is 3/8 inch; the saw's speed is 325 r.p.m. The gang and edger saws are 20 inches in diameter and have eight special inserted teeth, as opposed to conventional saws having at least 20 teeth. The kerf is normally 3/8 inch wide. Speed of the saw is 1200 r.p.m.

Brewer reports that Buckeye discounts the price of saw kerf chips over regular chips by 20 to 25 percent for two reasons. There is some loss in yield of pulp, and there is extra handling required to assure that the amount of saw kerf chips are kept down to a 15 per cent level in any one digester charge. Otherwise, there may be difficulty in maintaining uniform digester circulation and temperature. Because the chips are fragile, the additional handling causes some breakage of chips which are subsequently lost during the screening operation. Buckeye's price for blended chips (saw kerf plus slab chips) is 75 cents per unit less than for slab chips alone.

A close-up view of screened saw kerf chips.

To manufacture acceptable saw kerf chips may require several additional pieces of machinery and equipment for these reasons:

1. bark cannot be removed from saw kerf chip as it can be from slabs; a log debarker may be necessary.
2. kerf chips should be blended with other chips from saw mill residues, slabs, edgings, tops; a slab chipper may be desirable.
3. since the saw r.p.m. to log feed ratio must be constant in order to produce a consistent length of chip, more power may be required to maintain this ratio.
4. to eliminate slippage of the wood material being fed to head, gang, and edger saws, power dogs or different

feed work may have to be employed.

5. kerf chips may contain 35-40 per cent fines (compared to 2 per cent for other chips), which demands adequate screening capacity.

One of the problems that lies ahead will be to improve saw kerf chip quality by increasing its length past the current ¼ to ⅜ inch. To do this, Brewer recommends the following changes in the saw: (1) increase the tooth's gullet to eliminate chip breakage due to compaction; (2) design sturdier tooth components to withstand more severe operating conditions; (3) redesign the blunt level on the tooths' cutting surface to increase chip length and lessen chip breakage. The net result which benefits both the pulpmill and the saw mill would be fewer losses because of less chip breakage and greater chip length.

Sources

1. Brewer, L. P., **Utilization of Saw Kerf Chips**, paper delivered at Southern Pulpwood Conservation Assn. meeting.

2. Holekamp, J. A., **Saw Chips**, Technical Release 60-R28, American Pulpwood Assn. June 27, 1960.

3. Martin, J. L. **Pulping Sawdust Chips Made by a Coarse Feed Saw**, paper presented at 1959 national meeting of Forest Research Society. (reprinted in Forest Products Journal, Oct. 1959).

Planer Chips are Workable, Could Boost Chip Supply By 15 Per Cent

L. P. Brewer,
Buckeye Cellulose Corp.,
Foley, Fla.

"Blanking" in sawmill jargon is the sizing of miscut lumber. Chip blankers (top head and side head) are green lumber sizers that produce chips acceptable for pulping as they remove the excess wood from the width and thickness of green lumber. Currently there are several sawmills on the West Coast and in British Columbia that blank their lumber and sell the residues to pulp mills.[1] Two companies now build and sell chip blankers: the Stetson Ross Machine Co. in Seattle, and the Sumner Iron Works in Everett, Wash.

In the South, we first must overcome four present-day recognized objections to the manufacture and use of planer chips:

1. a resistance to change;

2. the high price of present-day equipment and the high installation cost versus payout potential;

3. will it work on southern yellow pine?, and

4. where should this equipment be installed?

Certainly the largest factor in miscut lumber is the result of saw mill design and method of operation. Ninety per cent of all sawmills in the area saw lumber with the logs passed repeatedly by a carriage through a single circular saw. Approximately 95 per cent of the lumber sawn in this manner is miscut. Some mills attempt to decrease the total amount of miscut lumber by passing cants (thick slabs) only once through ganged saws. The resulting lumber is cut more accurately in thickness, but is still miscut for width.

As an example, suppose Mill A cuts all lumber on a carriage and Mill B cuts cants and feeds them through a gang saw. By glancing at Figures A and B (which depict end areas of lumber), one can quickly see the relative amounts of excess wood from each mill.

The actual dimension of the shrinkage and planing zone (unshaded area in sketch) is only an educated guess by the sawmill operators, but because of inadequacies in saws, gang saws, and sawyers, lumber cannot be cut to the very outside edge of the unshaded (open) area. But with a chip blanker it could be machined to this edge.

Eighty-five per cent of all lumber cut in this area is two-inch material as opposed to one-inch. Therefore, using the average green density of 54 lbs. per cu. ft., the following is calculated:

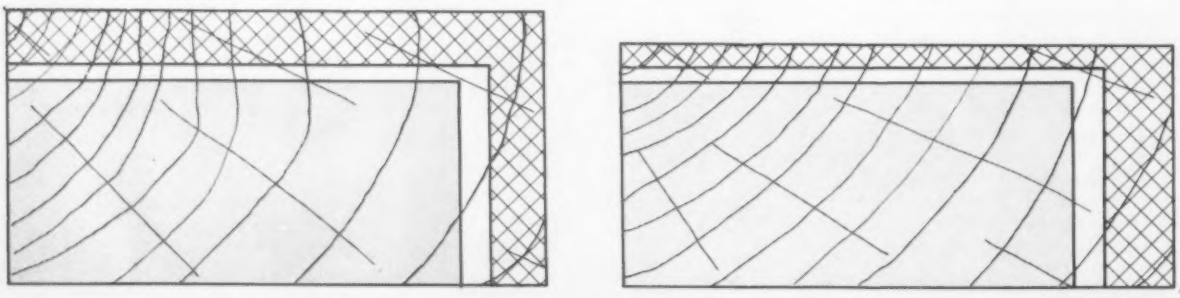
1. From 1000 b.f. of 2 x 4 lumber produced by Mill A, a side and top head chip blanker would produce 1200 lbs. of chips. The ratio of lbs. of chips cut from 1 M.b.f. of 2 x 6 and 2 x 8 lumber would be less, but an average of 1000 lbs. per M.b.f. is conceivable.

2. From Mill B, 1000 b.f. of 2 x 4 lumber would yield about 870 lbs. of chips. Again, there would be a lesser amount for 2 x 6 and 2 x 8 lumber, or 700 lbs. of chips per M.b.f.

If all of Buckeye's sawmill chip suppliers were equipped with chip blankers, or planer chippers, and my samples prove representative, Buckeye could receive annually an additional 15,000-20,000 units of chips (very low bark content). For the sawmill units operators this means an additional income of $250,000. Furthermore, the chip blanker may make it possible to boost all total Southern sawmill chip production by 15 per cent.

[1]See Paper Trade Journal, November 2, 1959 for report of chip blanking and blankers in the Northwest.

Based on Technical Paper 60-P16 released by the American Pulpwood Association.



Mill A—carriage-sawn **Mill B—gang-sawn**

End views of nominal 2 x 4 lumber to show relative area of finished lumber (shaded), shrinkage (clear), and blanking residue (cross-hatched). Gang sawing results in more accurate lumber thickness, but reduces the potential residue available for chip blanking.

Sizable Volume of Hardwood Veneer Chips Available, But Little Used

R. W. Parnell,
West Virginia P&P Co.,
Charleston, S. C.

Factors that favor the conversion of veneer mill residues into pulp chips are substantially the same as those favoring chip production at sawmills. They are: (1) more complete utilization, (2) greater returns per unit of production at veneer plants, (3) increased efficiency in the veneer operation resulting from installation of modern equipment and practices of up-to-date techniques of manufacture and handling.

Two unfavorable factors reported by pulp mills now using veneer chips are: (1) handling difficulties, due to the thinness of roundup and trim residue. This thinness causes many slivers and stringy chips. Such material creates very definite problems in unloading and conveying, especially when these chips are predominant. One company reports that they had to discontinue the use of "thin chips" in their continuous digester system, and used them only in their rotary batch type digesters. (2) lower yield than from regular chips of hardwood pulpwood. This is due to shorter fiber length found in the center portions (the veneer cores) of the trees.

How much of the veneer chip potential is already being utilized by pulp mills, how much of the remainder could be obtained, and what cost? It is stressed that up-to-date statistics on veneer production are sparse. For instance the latest statistics available for the production of veneer by states and for the United States as a whole were for the year 1948. Then 1,130,535,000 board feet of timber were used by the veneer industry.[2] The seven southeastern states — Virginia, North Carolina, South Carolina, Georgia, Florida, Maryland, Tennessee—accounted for 286,144,000 of this total. Information furnished by equipment manufacturers indicates that approximately three tons or 1.2 cords of residue material are available from each thousand board feet (M.b.f.) of logs used in veneer production. Applying this to the above, the southeastern states produced 343,252 cords of residue potentially available to the pulp industry.

With the build-up we all know has taken place in other forest industries since 1948, we can reasonably assume that veneer production for the Southeast has also increased, despite claims in recent years by veneer manufacturers that they were being driven out of business by foreign competition.

The most recent available data are found in a survey conducted by the Georgia Forest Research Council. They reported the volume of residue produced by veneer and plywood mills in Georgia for 1957 as follows:

Kind of Residue	Cds./M.b.f.	Volume Produced
Bolt Trim-off	.04	4,340 cds.
Veneer Cores	.54	60,720
Veneer		
Round-up	.27	29,910
Veneer Clip	.43	48,220
Panel Trim	.26	6,510
Total	1.54	149,600

Note that they report an average of 1.54 cords of residue per M.b.f. (or 3.87 tons/M.b.f.), based on Doyle log scale and green weight, as compared to the more conservative 1.2 cords/M.b.f. previously used.

North Carolina's Dept. of Conservation and Development (in cooperation with the U. S. Forest Service) compiled the following data for that state in the year 1952:

Bolt Trim-off produced	8,194 cds.
Veneer Trim & Cull produced	10,690
Veneer Cores produced	57,111
Total produced	75,995

For South Carolina, in the year 1952, the volume of logs used for veneer production would have produced a residue chip potential of 125,570 cords (using 1.2 cds/M.b.f. as the standard). There are presently some 30-35 veneer mills in S. C. Several of them are already chipping their waste with most of the chips being purchased by Sonoco Products Co. at Hartsville, S. C. Nearly all of the other veneer mills in the state are selling their cores at approximately $5.00 per ton, f.o.b. their plants. These cores are being used by pulp, roofing and brick mills.

Recall that in the data on Georgia, a 1000 b.f. of veneer logs produced about 0.54 cords of residue and that the remaining residue amounted to 1.00 cord. This remainder is generally used as fuel to fire boilers. Consequently, it can be reasonably assumed that most of this waste could be available to pulp mills.

It is apparent that each mill would need to make its own survey to determine this potential volume. While all of the data cited above are admittedly out of date, they probably furnish a fair guide as to the potential volume of residue that might be available from veneer and plywood plants.

Based on Technical Paper 60-P15, released by the American Pulpwood Ass'n.

"Tell me more about your handling of pulp wood arriving by rail."

[2]Facts for The Lumber Industry—1957, published by the National Lumber Manufacturer's Ass'n., Washington, D. C.

Raw Materials Trends Show Rising Exports of Pulp and Waste Paper

During 1960 the United States became a major exporter of market pulp to Europe. Also, of significance is a large increase in the export of waste paper.

John R. Mutzabaugh,
Industry Analyst,
Pulp, Paper & Paperboard, BDSA,
U. S. Department of Commerce

U. S. production of wood pulp increased between four to five per cent in 1960 over 1959, owing in part to sizable exports which went mainly to European countries. The principal conditions that motivated strengthened European demand are expected to continue and should provide substantial pulp markets in the years ahead.

Production of wood pulp in the U. S. was 18.9 million tons in January-September 1960, an increase of 900,000 tons from the same period in 1959. Exports were 859,000 tons, an increase of 380,000 tons. Exports to Western European countries were 534,000 tons, of which 72 per cent was paper grade chemical pulp.

Growing European Consumption

According to U. S. Foreign Service posts, rising pulp demand in European countries stems partly from a need for more and better quality paper and board products used in the prepackaging and shipping of items sold in self-service stores.

Conversion of food, drug, or variety stores to self-service raises the demand for shipping and rigid and semi-rigid type packaging containers, and slightly lessens the need for flexible paper products used in prepackaging. The net result is an increase in total paper and board requirements and thus greater wood pulp needs. Demand generated by self-service stores, and limited production in some European countries, may provide substantial long-term pulp markets, particularly in the United Kingdom, West Germany, France, and Italy.

More than 6,000 self-service stores are in operation in the **United Kingdom**, and conversions are taking place at a rate of 100 a week. Self-service store requirements of paper and board, if produced in the United Kingdom, will be manufactured largely from imported raw materials. Waste paper is the only raw material for paper making that is available domestically in sizable quantities.

The upswing in raw material demand resulting from self-service operations is reflected to a degree in U. K. statistics, which show that total imports of paper grade chemical pulp increased 26 per cent in January-September 1960 over 1959, the U. S. share rising 121 per cent. Paper and board output in the United Kingdom increased 55 per cent from 1950 to 1960, and many economists estimate that demand will double in the next 20 years.

West Germany has 17,000 self-service stores, probably more than any other country in the world except the United States. Its demand for bleached pulp continues to increase as conversions to self-service mount. German non-integrated pulp producers complain of inability to meet competitive prices of imports from Scandinavia and Austria, mainly because of high prices of wood and electric power. U. S. shipments of paper grade chemical pulp to West Germany increased 129 per cent in the first 9 months of 1960 over the same period in 1959.

Statistics on self-service stores in **France** are not available, but wood pulp demand, however generated, is increasing sharply. Total pulp imports were up 20 per cent in January-September 1960 over 1959. Imports of paper grade chemical pulp from the United States rose 267 per cent in the same period. Because of a shortage of domestic pulpwood, which is expected to continue at least through 1980, regular imports of wood pulp into Furnace can be envisaged for a long time.

Although no revolution in paper packaging appears imminent in **Italy**, both U. S. and Italian manufacturers foresee a long-term gradual rise in paper and board consumption. Italian production of corrugated paper products, principally for domestic consumption, has increased rather rapidly—15 to 20 per cent annually—over the past few years.

Lack of raw material and the use of outdated equipment preclude the manufacture of high-grade wood pulp by some Italian producers. U. S. shipments of paper grade chemical pulp to Italy were up 150 per cent in the first 9 months of 1960 over 1959.

On the basis of the growth pattern in the United States, **Western European** pulp demand attributable to self-service store operations should increase for many years. A conservative estimate places the number of self-service food stores in the United States at 250,000 or one store for each 700 of the population. Including all types of self-service operations, West Germany has one store for each 3,200 persons and the United Kingdom one for each 8,500 persons.

Limited pulp-making raw material supplies in Western European coun-

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From the U. S. Dept. of Commerce, B D S A, Pulp, Paper and Board Industry Report, Volume XVI, Number 4, released January 16, 1961.

tries and the tightness of wood pulp available from Scandinavia is enhancing U. S. export opportunities.

Waste Paper

A favorable turn in waste paper trends in January-September was a 25-per cent increase in exports over the first 9 months of 1959. Shipments to established foreign outlets increased, and some new markets were acquired in Western Europe. At least two European countries where paperstock use historically has been at the rate of 25 per cent of total paper and board raw material consumption, increased such use to over 30 per cent in January-June 1960.

Waste paper consumption in some European countries depends substantially on the harvest. For example, a poor harvest due to drought in West Germany in the fall of 1959 resulted in the diversion of large quantities of straw, ordinarily used in board production, to farm requirements replacing other types of fodder.

The price of straw available in West Germany for board production increased, and larger than usual quantities of paperstock were used by board manufacturers. As a result paperstock accounted for slightly more than one-third of paper and board raw material consumption in the latter half of 1959 and the first half of 1960. No probability of a change until after the 1960 fall harvest was foreseen.

United States trends in paperstock demand other than for export were not encouraging. Mill receipts were down three per cent from January-September 1959, and consumption was off two per cent. End-of-September inventories were up three per cent, an improvement since the first of the year, when stocks were 24 per cent above a year earlier.

PJT NEW LITERATURE

Barr and Stroud Viewer

Discusses inspection of web without stopping machine. Permits the operator to see a section of the web reflected in a mirror system. Explains installation and its simple operation. For critical examination suggests magnifier. Improve quality of your operations and install a Viewer. 4 pp. Bulletin. Mount Hope Machinery Co., 15 Fifth St., Tauton, Mass.

Handbook of Cost Cutting Materials Handling Ideas

Shows how to select the right truck for the job. Pros and cons on narrow versus wide aisles, walkies versus rider type. Analyses materials handling for the plant; flow charts, battery calculator charts, and proven cost-cutting applications. 80 pp. Bulletin. Automatic Transportation Co., 149 W. 87th St., Chicago 20, Ill.

Aloyco Corrosion-Resistant Valves

Illustrations and adaptable features, with specifications for each. Also, summarizes the types of alloys in which each valve is available from stock, as regularly manufactured, or on special order. Complete engineering specifications, and a listing of alloy materials, with chemical composition ranges and minimum mechanical properties. Bulletin #7, Alloy Steel Products Co., Linden, N. J.

Buy Log of Low Voltage Equipment

Provides complete buying information on heavy-duty safety switches, CLF current-limiting fuses, hinged wireway, circuit breakers, switchboards, motor control centers, power distribution centers, and all types of panelboards and busway. Includes charts, descriptions, consolidated pricing tables, and a catalog number index. 92 pp. Catalog. #GEC-1100C, Distribution Unit, General Electric Co., Plainville, Conn.

Emjay Kolmetal

Describes use to prevent product contamination in tanks carrying oils, edible products, salt water and many chemicals. Explains how this finely pulverized aluminum material in a plastic base serves the marine industry, and explains other applications in chemical and industrial fields. Bulletin. Emjay Maintenance Corp., Rutherford, N.J.

Hi-Pressure Indicating Rotameter

Covers Model Series #1400, designed for pressure up to 5000 p.s.i.g. @ 200 F. Includes detailed drawings, dimensions, and capacity tables with full description of this Series and its operation. Bulletin #131, Brooks Instrument Co., Inc., Hatfield, Pa.

Honeywell Potentiometer Electronik 17

Illustrates features which save you time, trouble, money, and maintenance — in a small space and bring you — peak performance, convenience, and economy. Available in three basic models, strip chart recorder, circular chart recorder, and circular scale indicator. 22 pp. Bulletin. Minneapolis-Honeywell Regulator Co., Wayne and Windrim Aves., Philadelphia 44, Pa.

Neptune Stainless Steel Liquid Meters

Describes a unit capable of handling a long list of corrosive and non-corrosive liquids. The meter casing and measuring chamber, as well as all other parts which are exposed to the liquid being metered, are made of Type 316 Stainless or other materials resistant to chemical corrosion. Points out advantages of metering liquids including better control in batch mixing, speed in production, safety, etc. 4pp. Bulletin. Neptune Meter Co., 630 5th Ave., New York 20, N.Y. Att: Mr. Oke R. Henstrand.

Rex-Rated Bucket Elevator Components

Features simplified selection charts and information aids which allow quick and easy selection of centrifugal and continuous discharge elevator components. Contains basic data of these components as chains, buckets, sprockets, bearings and take-ups. Selection procedures and tables are based on years of Chain Belt experience. Best answer to maximum service — and greatest wear. Bulletin #6057P, Sales Promotion Dept., Chain Belt Co., Milwaukee 1, Wis.

Super-Seal Motors

Describes capabilities no other open motors can handle. Shows why Super-Seal motors with Poxeal and Silco-Flex insulations are providing efficient service under the most severe operating conditions in industry, plus cost-saving advantages, full protection features, and unmatched motor superiority. Bulletin 05-51B9040B, Allis-Chalmers, Milwaukee 1, Wis.

SF NEWSLETTER

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* patented, U.S. & foreign

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Groun[illegible]	$82.50/ 90.00	$82.50/ 90.00	$90.00/ —	$90.00/ —	$90.00/ —
Bleac[illegible] l.	97.50/100.00	97.50/100.00			
Kraft [illegible]	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, [illegible] Hdwd.	135.00/140.00		140.00/ —		
Kraft, [illegible] eached.	130.00/140.00				
Kraft, [illegible]	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphi[illegible]	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphi[illegible] dwd.	135.00/ —				
Sulphite, Unblchd..	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS

WEEK ENDED JANUARY 24

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	8.00/7.50
3	$7.00/6.50	$7.50/7.25	$7.50/7.00	7.25/6.75
4	6.50/5.75	6.50/6.25	6.50/6.25	6.50/6.25
5	5.75/5.25	5.75/5.50	6.00/5.50	— /6.00
6	5.25/4.25	5.00/4.75	5.25/5.00	5.00/4.25
7	4.25/3.50	4.25/4.00	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Jan. 30	Jan. 30	Jan.	Jan.
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	11.00/ —	12.00/ —
Overissue News (Lg. size)	11.00/ 13.00	9.00/ 11.00	16.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	9.00/ 11.00	9.00/ —	13.00/ —
Old Corrugated Containers	19.00/ 20.00	17.50/ 18.00	18.00/ —	17.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	28.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	30.00/ 32.50	30.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 70.00	47.50/ —	45.00/ —
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	42.50/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	10.00/ —	30.00/ —
White Newsblanks	42.50/ 45.00	47.50/ 52.50	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 60.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	85.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	40.00/ 42.50	35.00/ —	35.00/ —
Manila Tab. Cards	57.50/ 60.00	57.50/ 60.00	55.00/ —	60.00/ —
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	35.00/ —	18.00/ —
White Ledger	45.00/ 50.00	42.00/ 47.00	45.00/ —	45.00/ —
Mixed Book & Mag.†	— / —	— / —	8.00/ —	— / —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	22.50/ —	14.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

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Cowansville, Quebec • Cuautitlan, Mexico

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This type of detailed felt testing continues *right through to your machine.* Check after check after check . . .

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—AND PROFITS—
AT YOUR MILL

TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER

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Illustration courtesy of Magnavox Co.

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Examine this advertisement closely—it's different from ordinary 4-color advertisements. Notice particularly how this paper shows outstanding definition and brilliance on its extra-smooth surface. It's due to RHOPLEX—because this paper is RHOPLEX-coated.

RHOPLEX is a Rohm & Haas all-acrylic emulsion binder for pigments. It has produced this paper's fine ink receptivity, its varnish holdout and its freedom from picking. Notice, too, there's no objectionable odor—you'll especially appreciate this if you're engaged in food packaging. If you're a papermaker, you'll welcome the mechanical stability of RHOPLEX resins and their trouble-free operation with your coating equipment.

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THE RESINOUS PRODUCTS DIVISION

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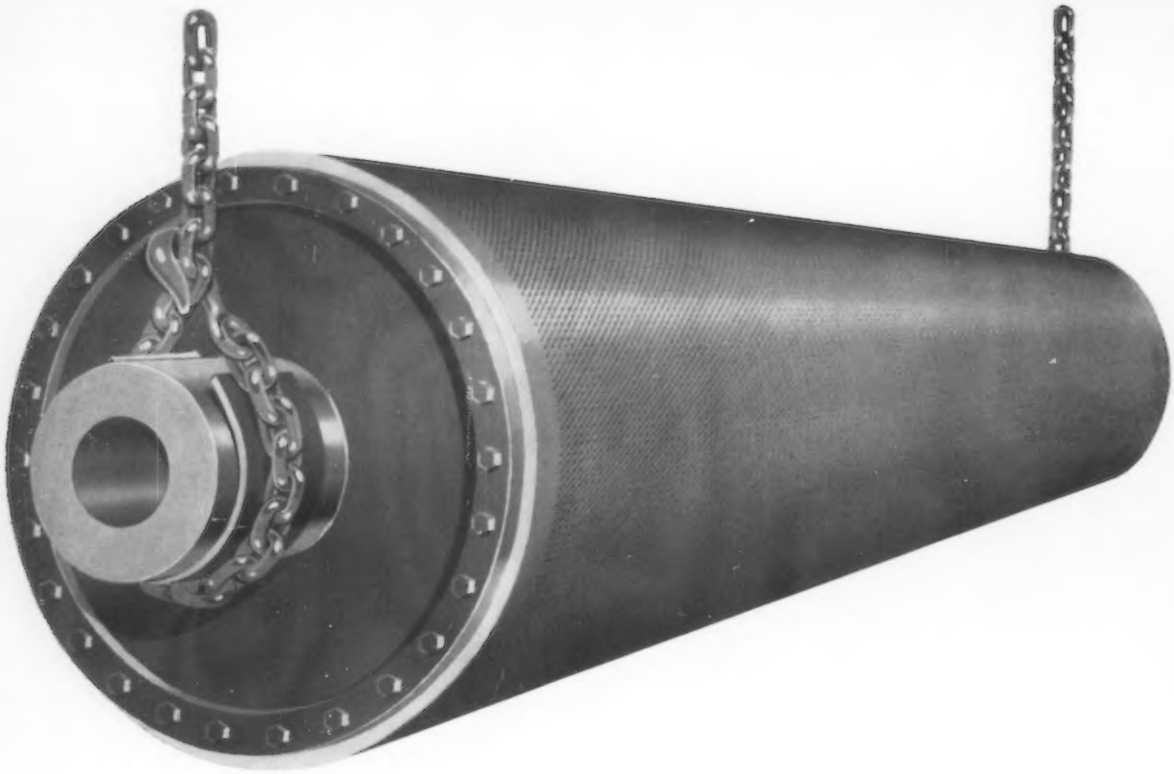

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...including this giant suction press roll

This giant suction press roll, recently shipped to a leading New England paper mill, is evidence of Tyer's ability to meet *any* paper-making roll requirements. Tyer's facilities are capable of handling the largest rolls used in today's high speed machines.

As a result of constant and intensive research and development, special Tyer manufacturing processes and bonding agents insure extra-long life, and trouble-free performance.

Find out how Tyer can help you. Call your Tyer Sales Engineer today.

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Tyer Rubber Company, Andover, Mass., U. S. A.

PJT NEWS OF SUPPLIERS

P. J. Boivin

W. C. Hand

Rust Engineering Co., Pittsburgh, Pa., announces that Philip J. Boivin has joined the company as a staff consultant, engineering department. He will specialize in the design and construction of pulp and paper mills. Previously, Mr. Boivin was plant engineer for Price Brothers & Co., Ltd., Kenogami, Quebec, with 12 years service. He is a civil engineering graduate of the University of Toronto.

E. D. Jones Corp., Pittsfield, Mass., manufacturer of pulp mill machinery and stock preparation equipment, has appointed W. C. Hand sales engineer covering the territories of California, New Mexico, Arizona and Hawaii.

Mr. Hand has served for the past eight years in the Jones Headquarter Sales group, the last four in the capacity of assistant to the headquarter sales manager.

Sprout, Waldron & Co., Inc., has announced that from now on the company's sales program in Latin America will be under the direction of Gerald R. Senra, who has just established headquarters for that purpose in San Antonio, Tex.

Prior to moving to San Antonio, Mr. Senra was Latin American sales manager at Muncy for a period of three years. For the past ten months, he has been located in Mexico City.

Raybestos-Manhattan, Inc., Passaic, N. J., has announced the appointment of S. R. Zimmerman, Jr., as executive vice president.

Mr. Zimmerman is a director and vice president of the corporation, general manager of the United States Asbestos-Grey-Rock Division at Manheim, Pa., in charge of operations of the Pacific Coast Division at Fullerton, Calif., and director of Cassiar Asbestos Corp., Ltd., in Canada. He is also a director of the Lancaster Manufacturers Ass'n. of Lancaster, Pa., and resides in that city.

Beloit Italia S.p.A., a leading paper-machinery builder of Pinerolo, Italy, will now make Clupak extensible paper machinery, having received a license from Clupak, Inc.

Clupak extensible paper is a kraft paper product with unusual energy-absorbing capacity and give. Its patents are owned by Clupak, Inc., whose president, G. E. Amerman, has over the past few months announced licensing agreements with paper companies, now numbering 21, and machinery building companies now totalling seven. Additional contracts are in negotiation.

Stanley Steel Strapping, division of The Stanley Works, New Britain, Conn., has appointed William M. Walsh, Jr., sales representative in Vermont and western Massachusetts.

Mr. Walsh has nearly five years of inside sales experience with Stanley Steel Strapping. He joined the company in 1956 after serving with the U.S. Army in Germany and France.

Appleton Woolen Mills, Appleton, Wis., has announced the establishment of a product services department in a move to strengthen the sales and service of its papermakers' felts.

Claire Turner, formerly sales manager, was named director of the new department which will be responsible for product design, customer technical service and liaison, quality control and inspection.

Succeeding Mr. Turner as sales manager is Ralph C. Watts, who had been district sales manager of UARCO, Inc., Chicago, before joining the Appleton felt manufacturing firm. Both Mr. Watts and Mr. Turner will serve on the company's Executive Committee.

Mr. Turner, a veteran of 35 years in the paper and paper clothing in-

"Get out of here—if we want this paper watermarked we will do it ourselves!"

dustries, had been sales manager of Appleton Woolen Mills since 1955. Prior to that he represented the company in the Midwest and in New England. Before entering the felt field he was a mill manager of several paper companies in New York state and in New England.

Mr. Watts, a graduate of Northwestern University, Evanston, Ill., and the holder of a master's degree from the Harvard Business School, Boston, has had broad experience in textiles and the sales of custom-made business forms. At UARCO he supervised a 20-man sales force. He was also a supply and disbursing officer in the U. S. Navy for six years during and after World War II.

Huyck Felt Co., Rensselaer, N. Y., announces appointment of Hans H. Dirzuweit as director of felt development and physical research.

In his new post, Mr. Dirzuweit will be responsible for the administrative supervision of the activities of felt development. Dan B. Wicker, Huyck vice president for research and development, noted that it is the intention of Huyck to strengthen its research and development program in order to continue the company's industry leadership in the area of research and development. Dr. Wicker stated: "Mr. Dirzuweit's training and background suit him ideally for the responsibilities of the position he will assume."

H. H. Dirzuweit

A. G. Dreis

Mr. Dirzuweit is a graduate of Rensselaer Polytechnic Institute where he received both a B.S. and an M.S. degree. His initial experience in the paper industry was with the Spaulding Fibre Co. at Tonawanda, N. Y., where he advanced to the position of assistant superintendent. He joined Huyck in 1956.

Heyden Newport Chemical Corp. has named Arthur G. Dreis product sales manager, paper chemicals, of its Newport Industries Division.

A principal of his own consulting firm to the paper chemicals and papermaking industries from 1954 until recently, Mr. Dreis is well known in this new market to which Newport Industries will now sell directly. Newport Industries has a long background as a manufacturer of paper size and other paper chemical constituents.

Mr. Dreis will be responsible for preparing marketing programs for these materials and for coordinating development, sales and technical service on chemicals for the paper industry.

Prior to 1954, Mr. Dreis was director of new paper product development for P. H. Glatfelter Co., paper manufacturer. He was associated with the Paper Makers Chemicals Department of Hercules Powder Co. from 1937-1951. Mr. Dreis holds a B.S. in chemical engineering from Armour Institute of Technology.

General Dyestuff Co., division of General Aniline & Film Corp., has named Clarence H. Buurman production manager, Linden dyestuff plant, reporting to John C. Lawler, himself recently appointed as director of manufacturing.

Until his current appointment, Dr. Buurman was area superinten-

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Ross Midwest Fulton Dryer Drainage Systems

Pays for itself in steam savings alone. Also increases production from 10% to 30% and improves quality of the sheet.

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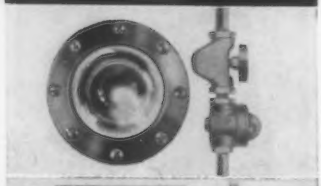
A proven condensate removal device for rotating dryers. Condensate film is reduced to a minimum, higher heat transfer, lower evacuation differentials, lower steam consumption.



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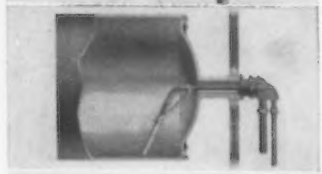

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dent—vat colors, at the Linden, N. J., plant. In his new capacity, Dr. Buurman will be responsible for all operations carried out in the vat color department at the plant.

Inta-Roto Machine Co., Inc., Richmond, Va., maker of laminators, rotogravure and flexographic presses, and other machines for the converter, has appointed John R. Barnes sales engineer.

Mr. Barnes comes to Inta-Roto after years of experience with Union Bag-Camp Paper Corp. in the production of gummed tapes, waxed papers, printed rolls and sheets. His most recent activity has been in the development and production of foil and film laminations.

General American Transportation Corp., of Chicago, has acquired the outstanding stock of INFILCO, Inc., of Tucson, according to T. M. Thompson, president of General American, and J. S. Gustafson, president of INFILCO.

Present plans are that the Tucson firm, for 63 years a leader in the field of water and waste equipment design and manufacture, will continue to operate under its present management as part of the Fuller group of General American Transportation Corp.

R. G. Biesel, vice president of General American and Channing Davis, president of the Fuller Co., stated that the operations of INFILCO will complement the operations of the process equipment, plate and welding, and field erection divisions of the corporation.

By its acquisition of INFILCO, General American enters a new and promising field which will be readily integrated into its existing business.

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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures
(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Dec. 24, '60	Dec. 31, '60	Jan. 7	Jan. 14	Jan. 21
1961	74.9	59.5	82.1r	90.4r	88.0
	Dec. 26, '59	Jan. 2	Jan. 9	Jan. 16	Jan. 23
1960	62.5	80.6	95.4	97.4	96.9

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.3‡	92.8‡
1961													

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	93.9	94.6	98.7	93.3	85.5	87.5	96.6	86.4
Year Average	91.6	96.2	97.9	90.4	87.0	92.2	92.8	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Dec. 24, '60	Dec. 31, '60	Jan. 7	Jan. 14	Jan. 21
1961	86	39	77	92	90
	Dec. 26, '59	Dec. 27-31	Jan. 1-9	Jan. 16	Jan. 23
1960	78	44	80	97	95

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961													

‡ Preliminary.
† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

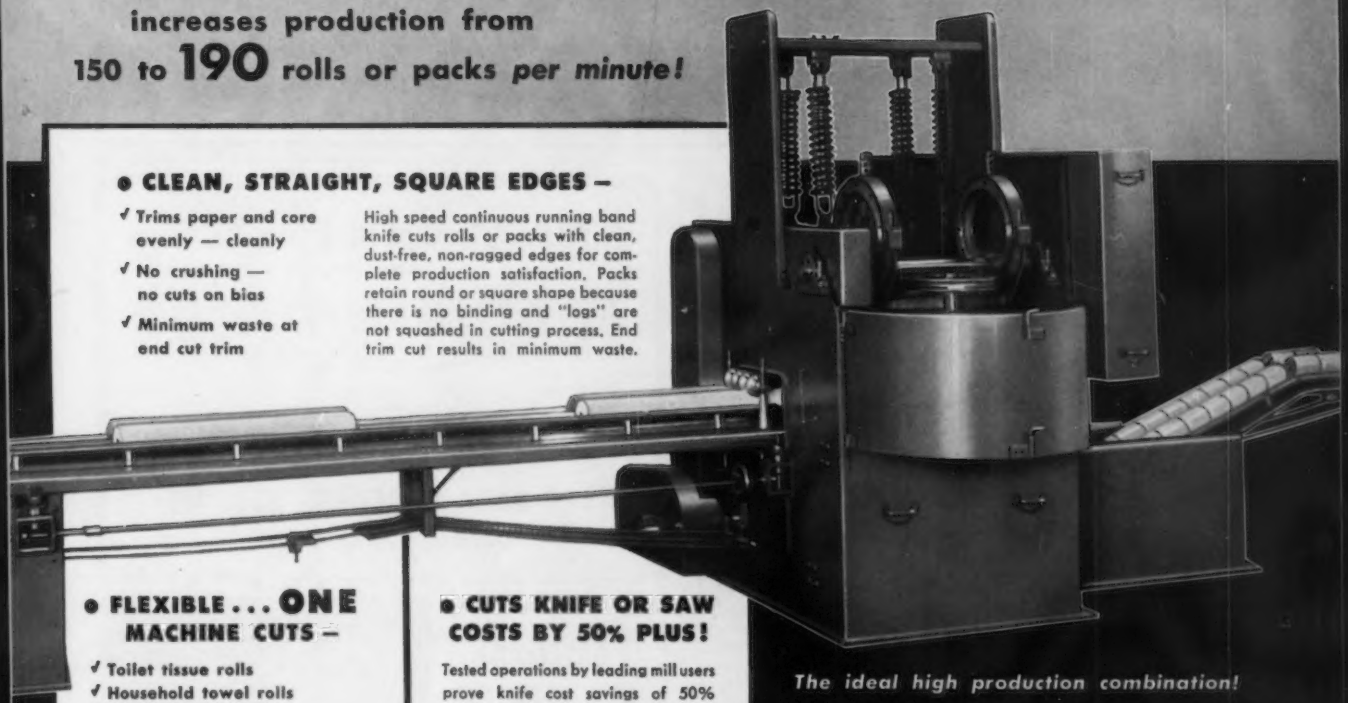
ITEM	WEEK ENDING Jan. 21, 1961	WEEK ENDING Jan. 14, 1961	CUMULATIVE TO DATE Jan. 1, 1961 to Jan. 21, 1961
% Activity	90%	92%	87%
Total	310,328	305,418	782,776
Containerboard—Domestic Use	154,267	153,761	385,332
Liner	104,220	99,604	254,941
Corrugating Material	46,236	48,615	118,817
Chip & Filler Board	3,811	5,542	11,574
Boxboard—Domestic Use	101,595	96,120	251,678
Folding	58,000	60,696	149,496
Set-Up	10,601	10,164	26,376
Special Food Board	32,994	25,260	75,806
Other Paperboard	54,466	55,537	145,766
Containerboard Type	24,879	25,567	69,290
Boxboard Type	29,587	29,970	76,476
Total Orders			
Received	297,119	294,387	
Unfilled End of Week	388,200	399,021	

A case of tissue every 33 seconds!

Hudson Sharp's NEWLY IMPROVED

PAPER ROLL and PACKAGE CUTTER

increases production from 150 to 190 rolls or packs *per minute!*



• CLEAN, STRAIGHT, SQUARE EDGES –

- ✓ Trims paper and core evenly — cleanly
- ✓ No crushing — no cuts on bias
- ✓ Minimum waste at end cut trim

High speed continuous running band knife cuts rolls or packs with clean, dust-free, non-ragged edges for complete production satisfaction. Packs retain round or square shape because there is no binding and "logs" are not squashed in cutting process. End trim cut results in minimum waste.

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- ✓ Household towel rolls
- ✓ Interfolded towels
- ✓ Interfolded tissues and other paper products

A single H-S cutter can be furnished to handle various types and sizes of products. Changeover parts are reasonable in cost and only nominal downtime is required to switch production. There's no need to have a separate cutter for each type of product you produce. This means important savings to you in capital investment, labor and space.

• CUTS KNIFE OR SAW COSTS BY 50% PLUS!

Tested operations by leading mill users prove knife cost savings of 50% and more! Exclusive H-S, *low cost* endless band knife 17' long x 3½" wide lasts considerably longer than conventional types. Knife maintains peak cutting efficiency throughout its life because it is continuously sharpened by automatic grinding wheels while running. *It need never be removed* until completely worn and ready for discard.

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H-S Paper Roll and Package Cutter and 60-B Automatic Roll Winder

Hudson Sharp's 60-B Roll Winder reduces jumbo rolls to finished rolls at speeds up to 1200 FPM — *with new, positive, "CLEAN-CUT" sheet perforations.* Handles web widths to 93". Automatic, progressive winding plus finished roll stripping and the most accurate sheet or measured roll count are just some of the standard features. Automatic core loading attachment available. Elimination of slitters for use with log cutter speeds output reduces web breakage and minimizes downtime. Get the complete facts, now!

New mechanical innovations have increased roll and package production from *150 to 190 per minute!* . . . A highly important factor in today's automation production. Two lanes of products are fed, cut and delivered simultaneously — in length cuts of 4" to 12" in ½" increments — log diameters of 4" to 5½". Can be used independently or in-line with automatic roll winders. Heavy-duty construction and counterbalanced rotary and eccentric motion provide smooth, dependable, trouble-free operation. Write today.

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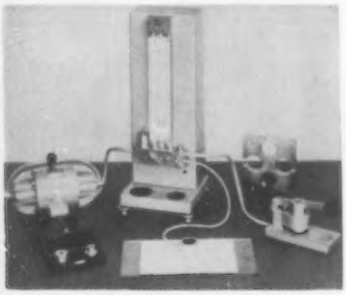

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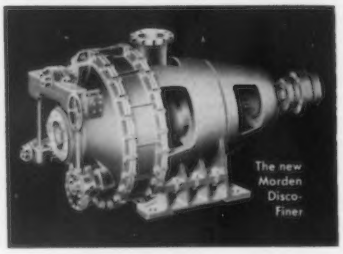

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1— 74" face Lukenweld w/A-F Brng
8— 75" face w/gears & bearings
26— 76" face; complete section
9— 76" face w/gears & bearings
2— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
11— 84" face; complete section
18— 90" face; complete section
9— 92" face; complete section
1— 96" face
1—138" face
10—160" face

42" Dia.:
23— 73; 74; 76" face; complete section
46— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia:
49— 46" face; chrome plated
12— 82" face; complete section
3—84" face
23—106" face w/gears & bearings
2—110" face w/gears & bearings
10—123" face w/gears, frames & bearings
1—128" face
20—130" face; complete section New A-F Brngs., Gears & Steam Joints

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3—Jones 65 h.p. Ratio 4.83 to 1
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1—Phila. 28 h.p. Ratio 10.56 to 1
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1—Cleveland 47 h.p.—ratio 3 5/9 to 1
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1—128" face x 24" dia.—complete section

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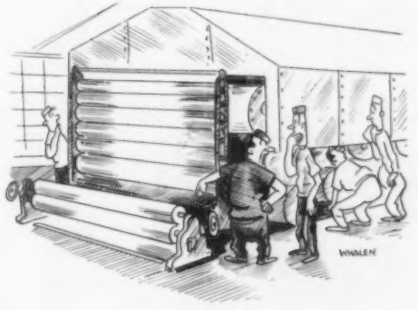

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A Drafting Board Can Reduce Your Maintenance 16
Maintenance Problems of the Smaller Mill 18
Let's Put Lubrication in a New Perspective 20
What an Engineered Lubrication Program Involves 22
Take Care of That Cable 27
What a West Coast Mill Does About Woodroom Maintenance 28
Woodyard and Woodroom Maintenance at Brunswick 31
Groundwood Mill Maintenance 33
Cutting Costs of Pulp Mill Maintenance 37
Maintenance at a Semi-Chemical Mill.. 40
Maintenance of Black-Liquor Recovery Units 42
Use of Protective Liners in Kraft Digesters 44
Special Problems of Bleach Plant Maintenance 51
Maintenance of Stock Preparation Equipment 53
Fourdrinier Machine Maintenance Procedure 56
Twenty Tips for Longer Belt Life 59
Yankee Dryer Maintenance at Scott Paper Co 60
Repairs on Grooved Press Rolls at Brunswick 64
How to Plan and Carry-out Finishing Maintenance 66
Installation and Maintenance of Gears and Gear Drives 70
Calender Stack Maintenance 75
Selection and Maintenance of Transmission Belting 78
Power Plant Maintenance at CZ Camas Mill 83
Equipment Necessary for Electrical Maintenance 87
Maintenance of Electrical Transformers 91
Maintenance of Paper Mill Electronic Equipment 93
Developing an Instrument Maintenance Department 99
Industrial Truck Maintenance at E. B. Eddy Co. 105
Tips on Grinding Rubber Covered Rolls 111
Organization and Operation of Maintenance Personnel Training 112
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American Defibrator Co. ..... —
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American Steel & Wire Co. ..... —
American Viscose Corp. ..... —
Ames Company Inc. ..... —
Anglo American Clays Corp. .. 57
Anglo-Canadian Pulp & Paper Mills ..... —
Anglo Paper Products Ltd. ... —
Antara Chemicals, Sales Div. Gen. Aniline & Film Corp. . —
Apmew, Inc. ..... —
Appleton Machine Co. ..... —
Appleton Wire Works 18
Armco Drainage & Metal Prod. Co. ..... —
Armco Steel Corp. ..... —
Asten-Hill Mfg. Co. ..... —
Ateliers de Constructions Allimond ..... —
Atlantic Coast Line R. R. .... —

Babcock & Wilcox Co. ..... —
Bahr Brothers Mfg. Co. 56
Bailey Meter Co. ..... —
Bauer Bros. Co. 13
Becco Chem. Div. Food Machy. Corp. ..... —
Beloit-Eastern Corp. 7
Beloit Iron Works Co. 18A & 18B
Binet, Louis et Cie ..... —
Bird Machine Co. 27
Bixby, R. W. Inc. ..... —
Black-Clawson Co. 29
Bolton & Sons 3
Brandon Sales, Inc. ..... —
Broughton, A. E. & Co. ..... —
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Chemico ..... —
Chromium Corp. of America .. —
Ciba Company ..... —
Cincinnati Rubber Mfg. Co. .. —
Clark-Aiken Company ..... —
Classified Advertising 58
Cleveland Crane & Engrg. .... —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Combustion Engrg. Co. ..... —
Corn Products Sales Co. .... —
Crane Company ..... —
Curtiss-Wright Corp. ..... —

Davis, Frank H., Co. Inc. 60
DeZurik Corporation ..... —
Diamond Alkali Co. ..... —
Dobeckmun Company ..... —
Dodge Mfg. Co. ..... —
Dorries, D., A. G. ..... —
Dorr-Oliver ..... 30 & 31
Dow Chemical Co. ..... —
Dow Industrial Service Div. Dow Chemical Co. ..... —
Doyle, J. E., Co. ..... —
Draper Bros. Co. 28
Dryden Paper Co., Ltd. ..... —
du Pont, E. I. de Nemours & Co., Dyes & Chem. Dept. ... —
Electrochemical Dept. ..... —
Industrial & Biochem. Dept. —
Pigments Dept. ..... —
Duverre Inc. ..... —

Eaton Manufacturing Co. ..... —
Ebasco Services, Inc. ..... —
Economy Equipment Co. ..... —
Egan, Frank W., & Co. 19
Egger, Emile & Co. ..... —
Electric Mchy. Mfg. Co. 22
Elixman Paper Core Co. ..... —
Escher Wyss G.m.b.H. ..... —
Evans, W. P. & Son, Ltd. .... —
Export Supplement ..... —

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Foxboro Co. ..... —
Freeport Sulphur Co. ..... —

Garlock, Inc. 6
Gaspesia Sulphite Co. Ltd. ... —
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Hooker Chemical Co. ..... —
Houghton & Company ..... —
Huber, J. M. Corp. ..... —
Hudson Sharp Machine Co. .. 55
Hungerford & Terry, Inc. .... —
Hunt, Rodney ..... —
Hunt & Moscrop ..... —
Huyck Felt Company ..... —
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Improved Machinery, Inc. .... —
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L'Homargy ..... —
Link-Belt Co. ..... —
Lob, Albert Maschinen und Apparatebau ..... —
Lockport Felt Co. ..... —
Lockwood Greene Engineers .. 54
Lodding Engineering Co. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —

Main, Charles T., Inc. 54
Manchester Machine Co. ..... —
Marathon—A Division of American Can ..... —
McLean, Ltd. ..... —
Mead Pulp Sales, Inc. ..... —
Mecke, Klaus, & Co. ..... —
Miehle-Goss-Dexter ..... —
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Montague Mch. Co. ..... —
Moore & White ..... —
Morden Machines Co. 56
Mt. Vernon Mills, Inc. ..... —
Murray, D. J., Mfg. Co. ..... —

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Osborne Paper Mill Equip. Co. —
Overly's Inc. ..... —

Paper Conv. Mch. Co. 14
Parsons & Whittemore ..... —
Patton Mfg. Co. ..... —
Penick & Ford ..... —
Penn. Ind. Chem. Corp. ..... —
Penobscot Chemical Fibre Co. . —
Pennsalt Chem. Corp. ..... —
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Pittsburgh Plate Glass Co., Chem. Div. ..... —
Potdevin Machine Co. ..... —
Powell Valves 11
Price & Pierce, Ltd. 57
Puget Sound Pulp & Timber .. —

Raymond, Charles P., Service 58
Rayonier, Inc. 53
Record Fdy. & Mch. Co. .... —
Red Ray Mfg. Co. 57
Reichhold Chemicals ..... —
Rhoads, J. E., & Sons ..... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Robbins Instrument Co. 56
Rockwood Sprinkler Co. ..... —
Rohm & Haas Co. 50C
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Ross, J. J., Co. ..... —
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp. .. 52
Ross Paper Machinery Co. .. 59
Ruderman Machinery Service . 60
Rust Engineering Co. ..... —
Ryerson, Jos. T., & Son ..... —

Sandoz Chem. Wks. ..... —
Sandy Hill Iron & Brass Wks. —
Scapa Dryers Inc. ..... —
Seaboard Air Line R. R. Co. . —
Shawinigan Resins Corp. ..... —
Sheffield Corp. ..... —
Shuler & Benninghofen ..... —
Signode Steel Strapping Co. ..... —
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
SKF Industries ..... —
Smidth, F. L., & Co. ..... —
Smith & Winchester Mfg. Co. . —
Sonoco Products Co. ..... —
Southworth Machine Co. 10
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. 54
Staley Mfg. Company 2
Starch Products, Ltd. ..... —
Stebbins Engrg. Co. ..... —
Stein, Hall & Co. ..... —
Stephens-Adamson Mfg. Co. .. —
Stevens, Inc., Charles R. 15
Stone & Webster Eng. Corp. .. —
Stowe-Woodward, Inc. 20
St. Regis Paper Co., Kraft Div. —
St. Regis Paper Co., Panelyte Div. ..... —
Sturge Ltd., John & E. ..... —
Sulzer Brothers ..... —
Sunday, George M., Assoc. ... 58

Taylor Instrument Co.'s .. 32 & 33
Taylor-Wharton Company .... —
Tennessee Coal & Iron Co. ... —
Tennessee Corp. ..... —
Texaco, Inc. ..... —
Texas Gulf Sulphur ..... 8 & 9
Thermal Equipt. Corp. ..... —
Thiele Kaolin Co. ..... —
Thiry & Company ..... —
Thomas Paper Stock Co. 56
Titanium Pigment Corp. .. Cover 3
Torrington Company ..... —
Tyler Rubber Company 50D

United Engrg. & Fdy. Co. 17
Universal Metal Hose Co. .... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corp. ..... —
U. S. Steel Corp. ..... —
United States Steel Export ... —
United States Steel Supply Co. —

Valley Iron Works ..... —
Vanderbilt, R. T., Co. ..... —
Vapor Systems Co. ..... —
Virginia Smelting Co. ..... —
Voith, J. M., G.m.b.H. ..... —

Waldron- Hartig Div., Midland Ross Corp. ..... —
Wallingford Steel Co. ..... —
Walworth Co. ..... —
West End Chemical Div., Stauffer Chem. Co. ..... —
Weyerhaeuser Co. ..... —
Williams-Gray Co. ..... —
Wisconsin Wire Works ..... —
Witco Chemical Co. ..... —
Woodpulp, Inc. ..... —
Wyandotte Chem. Corp. ..... —

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